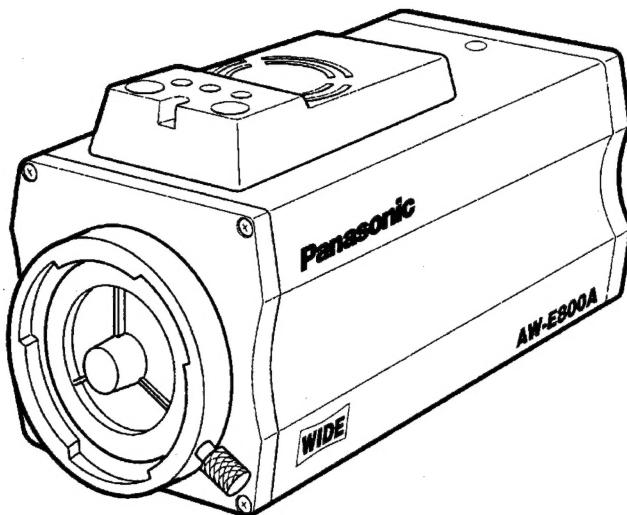


ORDER NO. BSD0012M910
D12

Service Manual

- Sec. 1 Operating Instructions**
- Sec. 2 Disassembly Procedure
and Service Information**
- Sec. 3 Electrical Adjustment**
- Sec. 4 Block Diagrams and Schematic Diagrams**
- Sec. 5 Exploded Views & Replacement Parts List**

Convertible Camera
AW-E800AP
AW-E800AE



Circuit Board Diagrams and Electrical Parts List of AW-E800AP/AE are described in CD-ROM Service Manual

Panasonic®

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⚠️ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

FOR AW-E800AP

SPECIFICATIONS

Source Voltage: DC 12 V
Power consumption: 16.8 W (Power OFF 0 W)

Optical system:	Dichroic prism optical system, F1.4
Pick up element:	2/3" interline wide CCD
Valid pixels:	980 (H) x 494 (V) (About 48.000 pixels)
General pixels:	1038 (H) x 504 (V) (About 52.000 pixels)
Scanning frequency:	525 lines 60 field 30 frame
Synchronizing:	Internal synchronizing input: ELA standard External synchronizing input: BBS or VBS (BNC x 1, Dsub 50 P x 1) 1.0 Vp-p Composite/75Ω (BNC x 1, Dsub 50 P x 1, Y/C Dsub 50 P x 1)
Video output:	1.0 Vp-p Composite/75Ω (BNC x 1, Dsub 50 P x 1, Y/C Dsub 50 P x 1)
Sensitivity:	2.000 lx (F9.5, 3.200K)
Minimum illumination:	3 lx (F1.7, +30 dB) Output 70% and above 1.5 lx (F1.7, Night eye mode) Output 70% and above (Only when black stretch ON)
S/N ratio:	63 dB (Y signal, DTL, chroma, gamma OFF)
Horizontal resolution:	850 TV lines (high band DTL)
Contour correction:	Horizontal, vertical (2H)
White balance:	AWCA, AWCB (R/B gain, painting), ATW 3.200K, 5.600K preset
Black balance:	Auto (R/B pedestal, painting function)
Adjustable chroma level:	7 levels
High light chroma:	OFF, LOW, HIGH
Encoding:	Y, R-Y, B-Y
Gain switch:	0 to 30 dB step, AGC L/H, Nighteye
Shutter speed:	1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 ELC Syncro scan (60.34 Hz to 15.75 KHz)
CCD reading switch:	Field, Flame1, Flame2
Color bar:	SMPTE
Lens mount:	2/3" bayonet mount
Lens focus:	Auto, Manual (only with remote control), Adjust ON/OFF
Switches:	MENU (↑) ITEM/AWC (↓) (AWC: when menu monitor is not shown) YES/ABC (+) (ABC: when menu monitor is not shown) NO/BAR (-) (BAR: when menu monitor is not shown)
Input/Output connector:	VIDEO OUT: BNC connector G/L IN: BNC connector IRIS: 12 P round connector DC 12 V IN: DC connector I/F REMOTE: 50 P Dsub connector
Indication:	Red LED lits: POWER ON
Tolerance temperature:	Storing -20°C to +60°C Performance guaranteed +5°C to +35°C
Tolerance humidity:	Operating guaranteed -10°C to +45°C
Dimensions (W x H x D):	Storing 20 % to 90 %, Operating 20 % to 90 %
Weight:	3-5/16" x 3-3/4" x 7-9/16" (83.5 x 94 x 192 mm) 2.42 lbs (1.1 kg)

Weight and Dimensions indicated above are approximate.
Specifications are subject to change without notice.

FOR AW-E800AE

SPECIFICATIONS

Source Voltage: DC 12 V
Power consumption: 16.8 W (Power OFF 0 W)

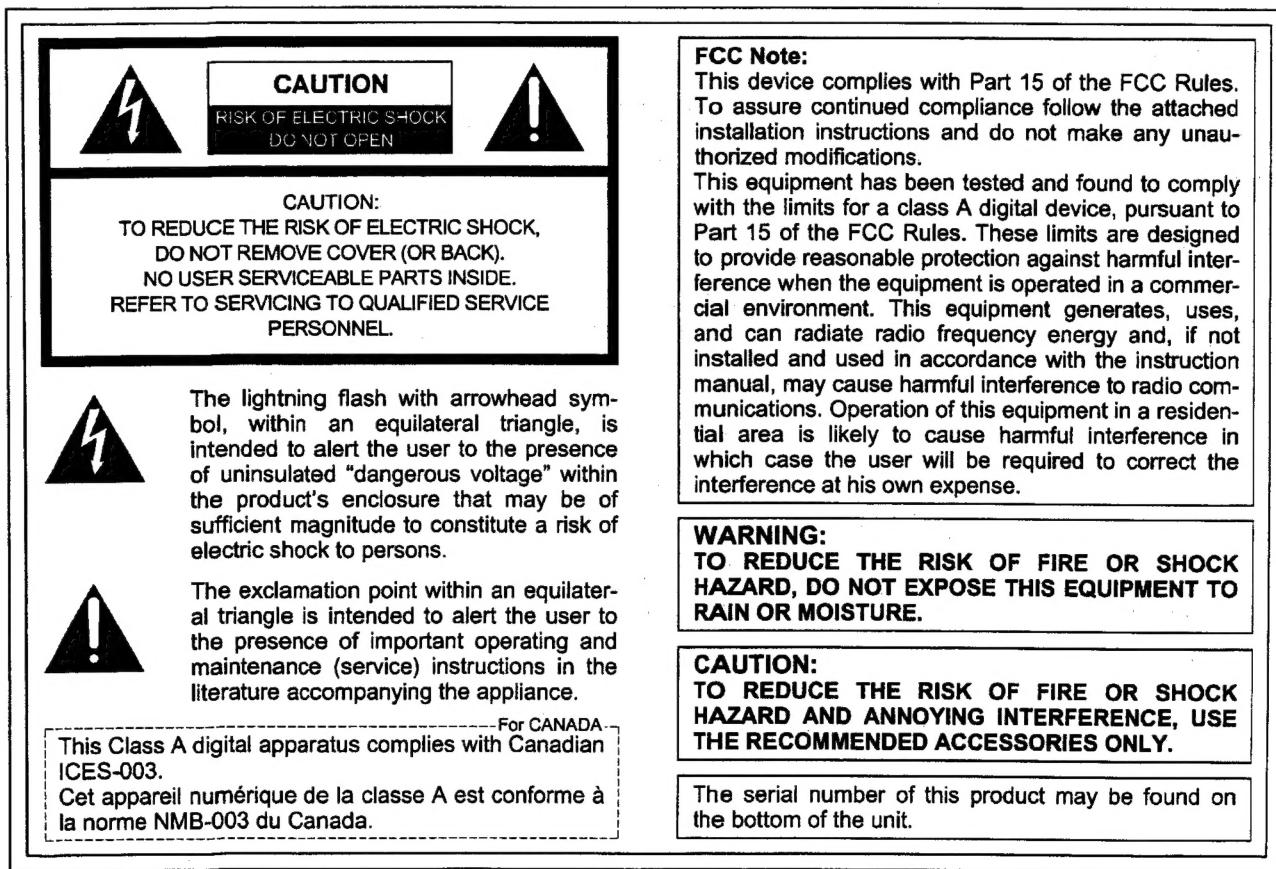
Optical system:	Dichroic prism optical system, F1.4
Pick up element:	2/3" interline wide CCD
Valid pixels:	980 (H) x 582 (V) (About 570,000 pixels)
General pixels:	1038 (H) x 594 (V) (About 620,000 pixels)
Scanning frequency:	625 lines 50 field 25 frame
Synchronizing:	Internal synchronizing input: PAL standard External synchronizing input: BBS or VBS (BNC x 1, Dsub 50 P x 1) 1.0 Vp-p Composite/75Ω (BNC x 1, Dsub 50 P x 1, Y/C Dsub 50 P x 1)
Video output:	1.0 Vp-p Composite/75Ω (BNC x 1, Dsub 50 P x 1, Y/C Dsub 50 P x 1)
Sensitivity:	2,000 lx (F9.5, 3,200K)
Minimum illumination:	3 lx (F1.7, +30 dB) Output 70% and above 1.5 lx (F1.7, Night eye mode) Output 70% and above (Only when black stretch ON) 61 dB (Y signal, DTL, chroma, gamma OFF)
S/N ratio:	850 TV lines (high band DTL ON)
Horizontal resolution:	0.05 % (General monitor excepted for the influence of lens)
Registration:	0% (General monitor excepted for the influence of lens)
Geometric distortion:	
Aspect ratio conversion:	16 : 9, 4 : 3
Contour correction:	Horizontal, vertical (2H)
White balance:	AWCA, AWCB (R/B gain, painting), ATW 3,200K, 5,600K preset
Black balance:	Auto (R/B pedestal, painting function)
Adjustable chroma level:	7 levels
High light chroma:	OFF, LOW, HIGH
Encoding:	Y, R-Y, B-Y
Gain switch:	0 to 30 dB step, AGC L/H, Nighteye
Shutter speed:	1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, ELC Syncro scan (50.40 Hz to 15.63 KHz)
CCD reading switch:	Field, Flame1, Flame2
Color bar:	FULL
Lens mount:	2/3" bayonet mount
Lens focus:	Auto, Manual (only with remote control), Adjust ON/OFF
Switches:	MENU (↑) ITEM/AWC (↓) (AWC: when menu monitor is not shown) YES/ABC (+) (ABC: when menu monitor is not shown) NO/BAR (-) (BAR: when menu monitor is not shown)
Input/Output connector:	VIDEO OUT: BNC connector G/L IN: BNC connector IRIS: 12 P round connector DC 12 V IN: DC connector I/F REMOTE: 50 P Dsub connector
Indication:	Red LED lits: POWER ON
Tolerance temperature:	Storing -20°C to +60°C Performance guaranteed +5°C to +35°C Operating guaranteed -10°C to +45°C
Tolerance humidity:	Storing 20 % to 90 %, Operating 20 % to 90 %
Dimensions (W x H x D):	83.5 x 94 x 192 mm
Weight:	1.1 kg

Weight and Dimensions indicated above are approximate.
Specifications are subject to change without notice.

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FOR AW-E800AP



 indicates the safety information.

FOR AW-E800AE

■ **DO NOT REMOVE PANEL COVER BY UNSCREWING.**

To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

WARNING:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

■ indicates safety information.

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been over-heated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. The resistance value must be more than $5\text{M}\Omega$.

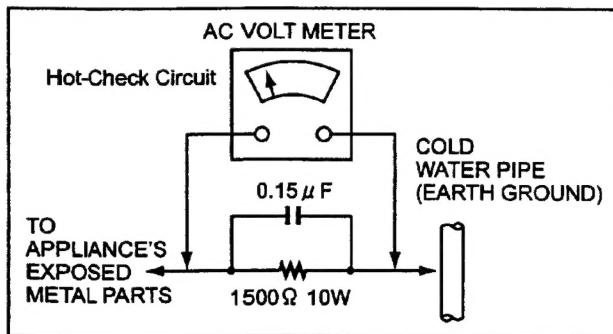


Figure1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5KΩ, 10W resistor, in parallel with a 0.15 μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ED) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (most replacement ES devices are package with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

SECTION 1

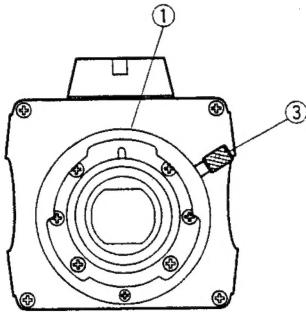
OPERATING INSTRUCTIONS

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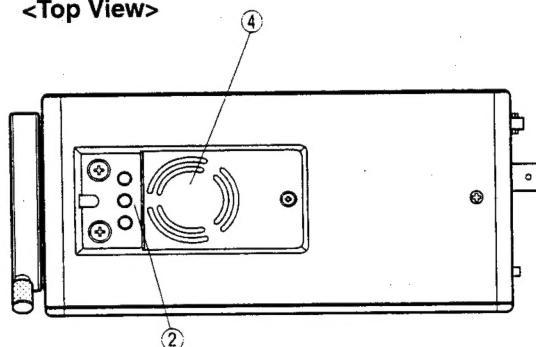
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MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

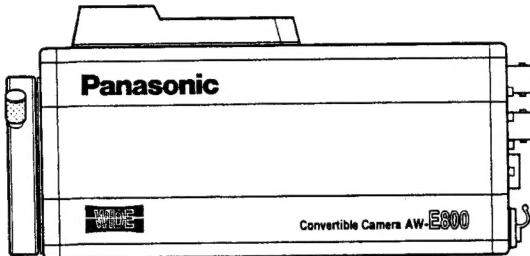
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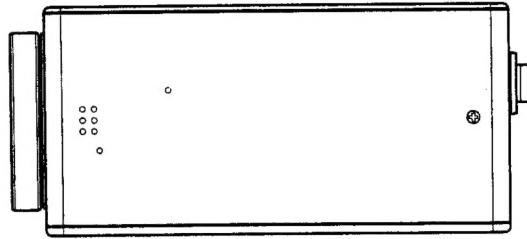
<Top View>



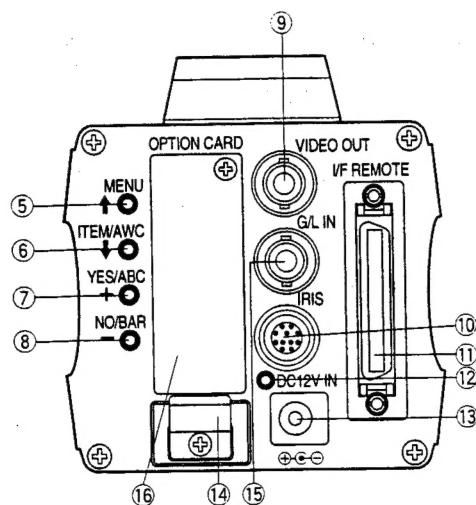
<Side View>



<Bottom View>



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1. Lens Mount

2/3" Standard bayonet type (B4 mount) lens or a microscope adaptor can be mounted.

2. Mounting hole

A screw hole (1/4" - 20 UNC) for mounting the camera on a wall, ceiling with a mounting bracket or tripod.

3. Lens fixing ring knob

Rotate the lens fixing ring knob counterclockwise and remove the lens mount cap. Mount the lens on the camera and rotate the lens fixing ring knob clockwise in order to fix the lens securely.

4. Cooling Fan

- Do not cover the port or otherwise block ventilation during operation. Internal heat buildup can cause a fire.
- The cooling fan has a service life of about 30 000 hours. (at a room temperature of 25°C) Replace the fan that has come to the end of its service life. (If the fan is used at a room temperature of 35°C and above, replace it about 30% sooner.) Whenever fan replacement is necessary, be sure to ask the store where you purchased the set.

5. MENU Switch (MENU/1)

A menu will appear on the monitor screen when this switch is pressed for about 5 seconds. This item can be selected by pressing the switch while the menu is on the screen.

6. ITEM/AWC Switch (ITEM/AWC/1)

The item just below can be selected by pressing this switch while the menu is on the screen. When the menu is not displayed or the camera is in shooting mode, the automatic white balance control can be set with this switch.

7. YES/ABC Switch (YES/ABC/+)

The Sub Menu for each item of the Main Menu is displayed when this switch is pressed while the Main Menu is on the screen. While the Sub Menu is displayed, any setting can be brought up to a higher value with this switch. When the menu is not displayed or the camera is in shooting mode, the automatic black balance control can be set with this switch.

8. NO/BAR Switch (NO/BAR/-)

The item just below can be selected by pressing this switch while the Sub Menu is on the screen. While the Sub Menu is displayed any setting can be brought down to a lower value with this switch. When the menu is not displayed or the camera is in shooting mode, the color bar and the shooting conditions are alternately indicated by pressing the switch.

9. Video Output Connector (VIDEO OUT)

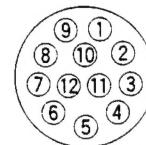
A composite video signal is provided at this connector.

10. Iris Connector (IRIS)

Input terminal for lens with an iris control function.

Pin No.	Signal	Pin No.	Signal
1	Return Control	7	Iris Follow
2	Not Used	8	Auto/Remote Control
3	GND	9	Not Used
4	Auto/Manual Control	10	Not Used
5	Iris Control	11	Not Used
6	Lens Power	12	Not Used

Iris Connector (IRIS)



<Front View>

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11. I/F Remote Connector (I/F REMOTE)

Input terminal dedicated to control signals from the optional Remote Control Box (RCB) (WV-CB700A) and the RCU (WV-RC700A, WV-RC550) and the camera pan/tilt unit (AW-PH300A).

- * WV-CB700A is connected through the optional RCB cable (AW-CA50T10/AW-CA50B10).
- * WV-RC700A/WV-RC550 is connected through the optional RCU cable (AW-CA50A26).
- * AW-PH300A is connected through the optional pan/tilt unit cable (AW-CA50T15/AW-CA50A15).

12. Power Indicator

Red LED lamp lights to indicate that the specified DC power is supplied to the camera.

13. DC 12 V Input Connector (DC 12V IN)

12 V DC is supplied through the optional DC power supply cable (AW-CA4T1).



Cautions

1. Connect this to a DC 12 V class 2 power supply only.
2. To prevent fire or shock, the UL listed wire VW-1, style 1007 should be used as for the cable for DC 12 V Input Connector.

14. Cable Clamp

Clamp the DC Power Supply Cable (AW-CA4T1) connected to the DC 12 V Input Connector to prevent it from slipping out.

15. G/L Input Connector (G/L IN)

Signals synchronized with the reference signal are to be supplied to this connector when the camera is to be synchronized with the reference signal BB.

16. Optional Card Slot

Slot for inserting an optional card. For details, refer to the manual for optional cards.

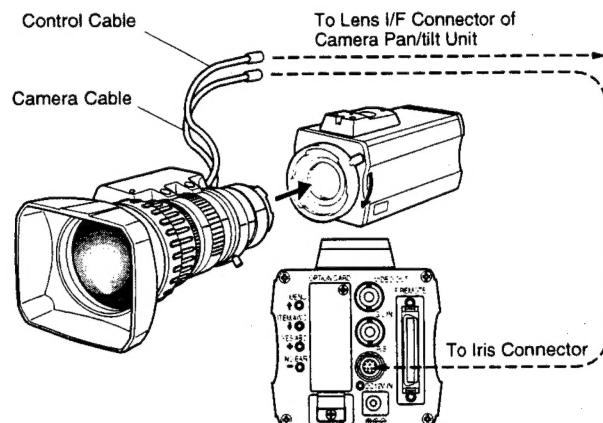
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MOUNTING

- Lenses of any make can be mounted on the camera as long as they are equipped with a 2/3" standard bayonet.
- Use the lens extension cable AW-CA12T12A (6"/15 cm) if your lens cable is too short.

1. Lens Mounting

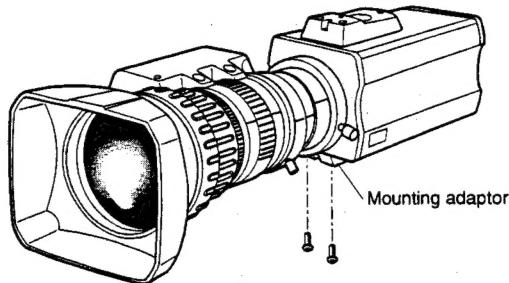
Rotate the lens fixing ring knob counterclockwise and remove the lens mount cap. Mount the lens on the camera and rotate the lens fixing ring knob clockwise in order to fix the lens securely. Connect the camera cable to the IRIS connector on the back panel of the camera.



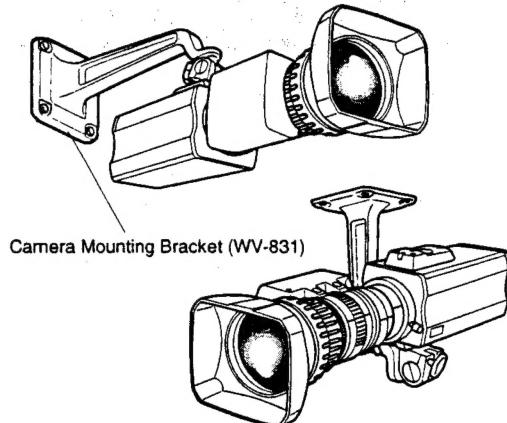
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2. Camera Mounting

1. To mount a camera on a pan/tilt head or a mounting bracket or the like, attach the mounting adaptor (supplied) to the bottom of the camera in case of bottom mounting.



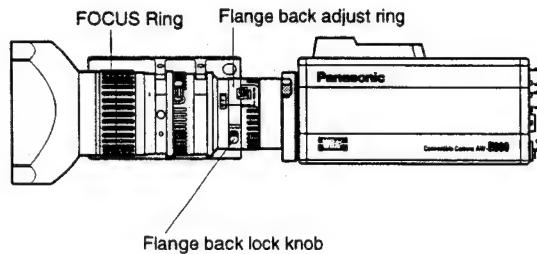
2. Fix the camera mounting base, pan/tilt unit, and tripod securely in the screw hole (1/4-20UNC) of the camera or the mounting adaptor.
3. If the camera cannot be securely fixed, mount the camera on a mounting bracket or the like with the supplied rubber sheet between the camera and it.
4. To mount the camera on the pan/tilt head, use tools in order to fix it securely.



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FLANGE BACK ADJUSTMENT (FOR ZOOM LENS)

1. Fully open the iris by shooting a dark object. (Iris selection switch should be set to M.)
2. Loosen the flange back lock knob.
3. Aim the camera at any object over 2 meters away from the camera.
4. Set the lens to its TELE end first and adjust its focus with the focus ring.
5. Set the lens to its widest angle next and adjust its focus with the flange back adjust ring.
6. Adjust the focus ring and the flange back adjust ring alternately for the best focus within the zooming range.
Tighten the flange back lock knob upon completion of focusing.
7. Turn the iris selection switch to Position A.

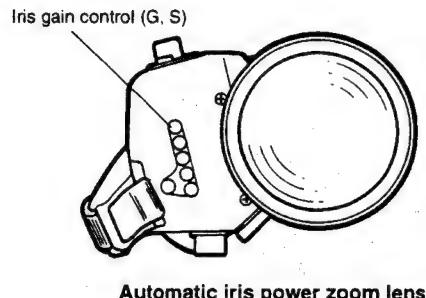


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IRIS GAIN CONTROL IN A LENS

An iris gain control hole is usually provided in the front of the lens. Adjustment of the iris gain, with a screwdriver through the hole may be done as follows. (Shape and location of the hole may vary depending on the type of lens.)

1. Turn the iris selection switch to Position A (AUTO).
2. Rotate the iris gain control to the maximum gain, but in a range where no hunting or oscillating of the iris ring develops.



Automatic iris power zoom lens

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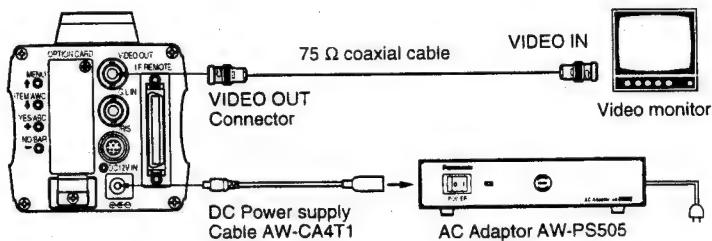
CONNECTIONS

Caution:

The connection and installation should be done by qualified service personnel or system installers.
Refer any servicing to qualified service personnel.

■ CONNECTION OF DEVICE WITH A COMPOSITE INPUT CONNECTOR

- Connection to any device which has a composite input connector, such as a video monitor or a VTR, must be made through the VIDEO OUT Connector.
- Power supply to the camera must be through the optional DC power supply Cable AW-CA4T1.
- For DC power supply, use the optional AC adaptor AW-PS505.



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■ CONNECTION OF A REMOTE CONTROL UNIT (RCU)

Connection to the RCU (WV-RC700A, WV-RC550) is made through the optional RCU cable AW-CA50A26.

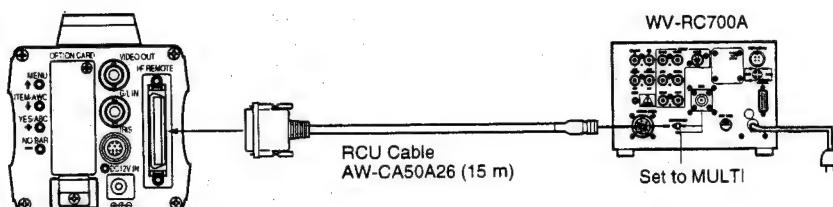
1. Turn RCU power off before connecting cables.
2. Set the cable selection switch of the RCU to MULTI (in case of using the WV-RC700A)
3. Connect the 50-pin connector of the RCU cable to the I/F REMOTE Connector of the camera.
4. Turn RCU power on and the power indicator lamp will light. The camera can now be remote controlled by the RCU.

Notes:

- The maximum extension distance between the camera and WV-RC700A is 300 m. The maximum extension distance between the camera and WV-RC550 is 300 m.

- Use the following options for cable extension.
Studio Cable WV-CA26U15 (15 m/50 ft)
WV-CA26U30 (30 m/100 ft)
WV-CA26U100 (100 m/330 ft)

Cable Joint Adaptor
WV-CA26T26



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■ CONNECTION OF A REMOTE CONTROL BOX (RCB)

The RCB (WV-CB700A) and the camera must be connected with the optional RCB cable AW-CA50T10.

1. Turn RCB power off before connecting cables.
2. Connect the 50-pin connector of the RCB cable to I/F REMOTE connector of the camera. The 10-pin connector must be connected to the RCB.
3. Turn RCB power on and the camera can be controlled remotely by the RCB.

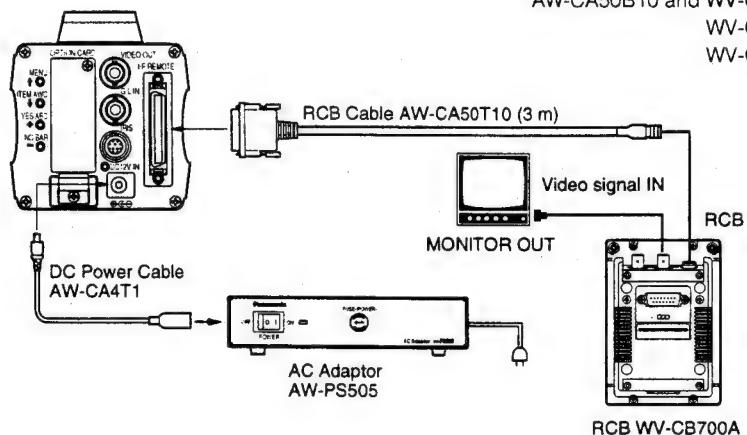
Notes:

- The monitor output signals of the RCB attenuate and deteriorate with cable length. It is recommended that the signals from the monitor output be used for monitoring purposes only.
- No gen-lock signal is available from the RCB.
- If a longer distance (more than 3 m) is desired between the camera and the RCB, use the following optional cable.

AW-CA50B10 and WV-CA10B2 (2 m)

WV-CA10B25 (25 m)

WV-CA10B50 (50 m)



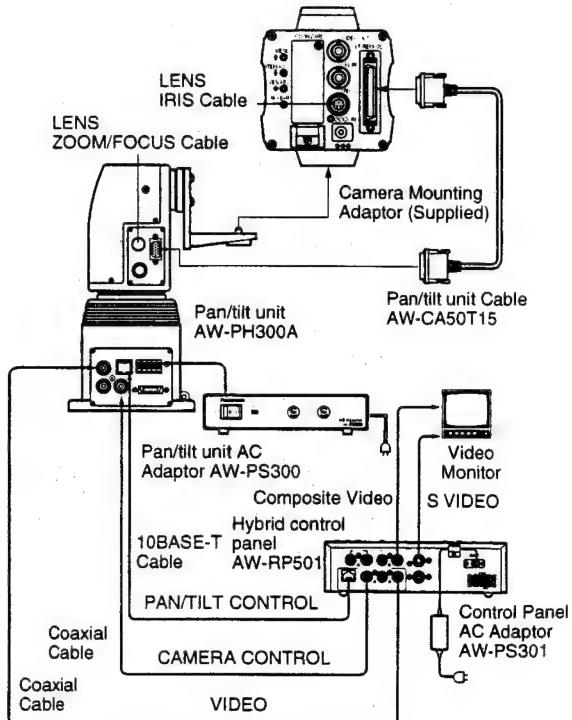
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■ CONNECTION OF DEVICES WITH CAMERA PAN/TILT CONTROL SYSTEM

- To connect the pan/tilt unit (AW-PH300A) to the camera, use the pan/tilt unit cable AW-CA50T15.
- Power is supplied from the pan/tilt unit.

1. Before connecting them, press the power switch on the pan/tilt unit AC adaptor and the ON/OFF switch on the hybrid control panel in the OFF position, respectively.
2. Fix the camera securely to the pan/tilt unit using the mounting adaptor.
3. Connect the 50-pin end of the pan/tilt unit cable to the I/F Remote connector on the camera. Connect the 15-pin end of the cable to the pan/tilt unit.
4. Connect the pan/tilt unit to the hybrid control panel with the 10BASE-T cable and coaxial cable. For details, refer to the manual for the hybrid control panel.
5. First switch on the pan/tilt unit AC adaptor, then press the ON/OFF switch on the hybrid control panel in the ON position. The camera and pan/tilt unit can now be controlled from the hybrid control panel.

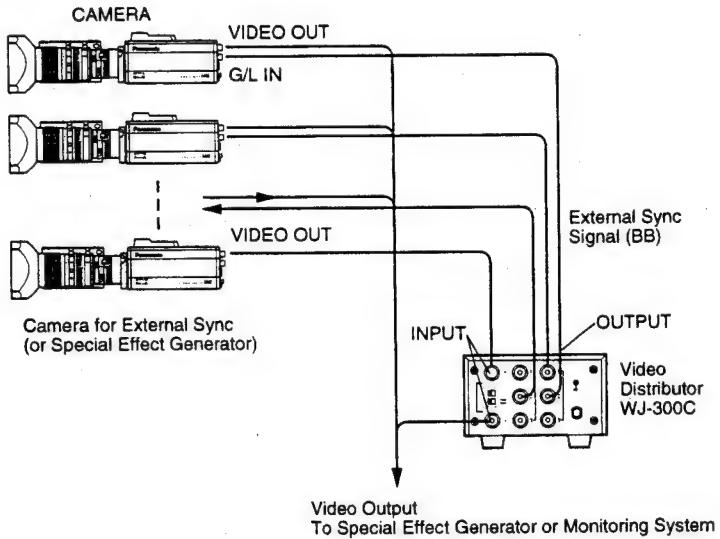
Caution: When mounting the camera on the pan/tilt head, use tools in order to fix it securely.



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■ CONNECTION WITH MULTIPLE CAMERAS (COLOR LOCK MODE)

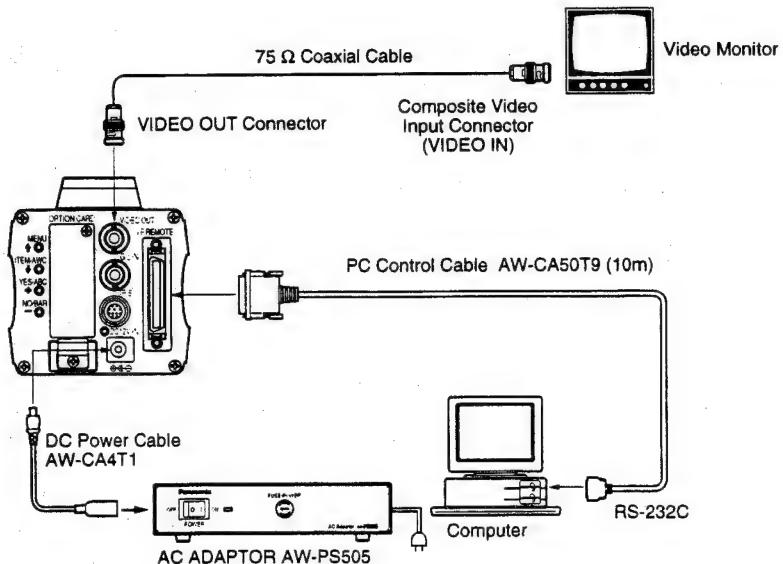
- An example of connection for VBS/BB input (Color lock mode).
- One of the multiple cameras is used as the source of reference signals.
- Supply a synchronizing signal (BB) to the G/L Input Connectors of each cameras.
- Do not switch off the camera used for supplying the reference signals.
- Adjust the SC-phase and H-phase at the Video Output Connector.



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■ CONNECTION OF COMPUTER

The system shown here can remotely control this camera by using a computer.
The software and the cable for RS-232C required for this operation should be obtained locally.
Please contact qualified service personnel for this software.



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ADJUSTMENT

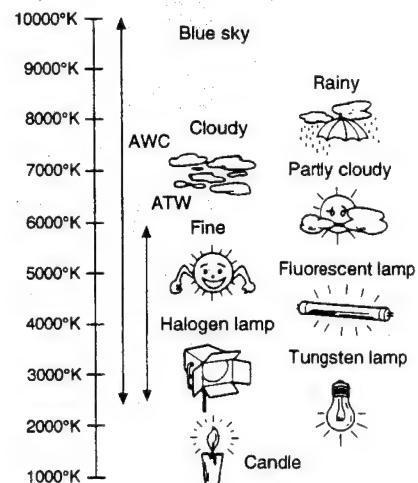
Color temperature and adjustment of white balance

When carbon is burnt, it develops various colors of light depending on the temperature. Natural light can be specified by color temperature referring to the color developed when carbon is burnt.

The light of 3 200K (K=Kelvin, $-273C$ equals to absolute zero temperature 0K) represents the same value (color) as what develops when carbon is burnt at 3 200K (2 927C). The relationship between the color temperature of the light source and weather condition is indicated in the right figure. Let's study the difference of shooting an indoor object from shooting one outdoors. Studios are usually lighted with incandescent lamps and the color temperature of a white object in a studio is around 3 200K. The color temperature of a white object outdoors is around 6 500K. The former may look a little yellowish while the latter appears somewhat bluish when they are shot by a camera. However, the human eye does not recognize color differences among these objects even under different ambient lighting conditions, because of their adaptability to light. The video camera reproduces color differences with high fidelity and the color of an object somewhat different from what appears to the human eye.

Therefore, there is a need to adjust the white balance in order to correct differences between color temperatures.

NOTE: Color temperature outdoors may vary depending on weather conditions.



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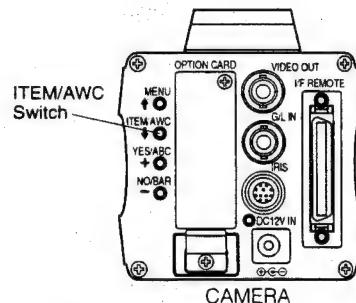
■ AUTOMATIC WHITE BALANCE CONTROL (AWC)

There are two white balance memories, "AWC A" or "AWC B" for two different light sources color temperatures, with the automatic white balance setting. Then, when the two different light sources are encountered, you may operate the camera properly by simply change the white balance mode to either AWC A or AWC B. There is no need to readjust the camera to the ambient conditions.

- * The preset conditions will be renewed whenever you input new conditions.
- 1. Turn the white balance selection switch to either "AWC A" or "AWC B" of RCU or select the white balance mode either AWC A or AWC B by menu.
- 2. Aim the camera at a white object (a white wall or a white handkerchief) and zoom in to enlarge the image as much as possible.

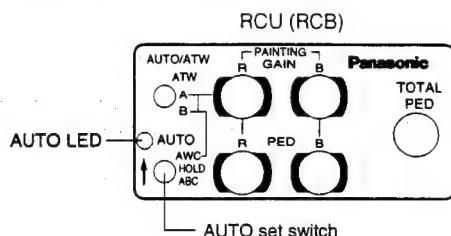
[ADJUSTMENT by CAMERA]

3. In normal shooting mode:
Press the ITEM/AWC switch for over 2 second.



[ADJUSTMENT with the RCU (RCB, Hybrid control panel)]

4. When the AUTO set switch is turned to AWC, the white balance will be automatically set. While the system is being set, auto warning indicator (LED) blinks and it goes out when the white balance setting is completed. If the lamp remains lit, the setting must be tried again.

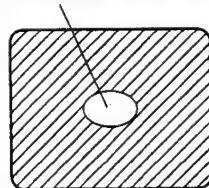


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Notes:

- For white balance setting aim the camera at a white object and try to position it in the center of the monitor screen. The object must appear in over 10 % of the total monitor screen area. Try to avoid overly bright objects in the scene.
- White balance may not be correctly set if the lighting of the object is too weak.

The white object must occupy over 10 % of the monitor screen area.



- Since the camera has a built-in memory, the set white balance will remain in the memory even if power is turned off. Therefore, it is not necessary to reset the white balance if the color temperature of those objects remains unchanged. However, it must be reset if the color temperature changes, such as when you move from indoors to outside, or vice versa.
- When the camera is used without a RCU or RCB red/blue gain adjustment of painting setting will be automatically reset to ± 0 after setting the white balance. (painting setting in only USER MODE.)

■ AUTOMATIC TRACKING WHITE BALANCE SETTING (ATW)

White balance will be automatically set to continuously match changes of light source and color temperature while the white balance setting is set to ATW.

Notes:

- ATW might not function properly when high brightness light (ex. fluorescent lamp) beams into a screen.
- White balance may not be accurately set if there is no white object in the scene being shot.

■ MANUAL WHITE BALANCE SETTING

[ADJUSTMENT by CAMERA]

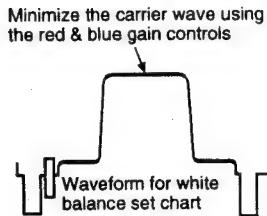
Manual setting is possible in USER MODE only.

1. Select the white balance mode either AWC A or AWC B by menu.
2. Aim the camera at a large white object. Press the ITEM/AWC switch for over 2 second.
3. Adjust the red gain/blue gain control in the PAINTING item of Color Set sub menu of USER MODE until the carrier wave of the white portion of the video signal is at the minimum width or the white object in the monitor screen appears pure white. (Use an oscilloscope or a waveform monitor for precise adjustment.)

[ADJUSTMENT with the RCU (RCB)]

After AWC setting, adjust the R/B GAIN controller in the same way as described in Step 3 above.

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■ RESET TO 3 200K OR 5 600K WHITE BALANCE

When the white balance setting is set to either "P SET 3 200K" or "P SET 5 600K" the white balance will be automatically set to the color temperature 3 200K or 5 600K, respectively.

■ BLACK BALANCE ADJUSTMENT

- Close the lens. If the motor drive lens is controlled from the camera, the lens is automatically closed when the black balance is adjusted.
- When the camera is used without a RCU or RCB, R/B pedestal adjustment of painting setting will be automatically reset to ± 0 after setting the black balance. (painting setting in only USER MODE.)

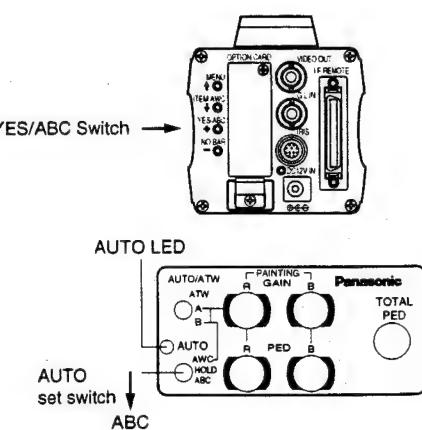
[ADJUSTMENT by CAMERA]

Press the YES/ABC Switch for over 2 seconds and the black balance will be set automatically in 10 seconds.

In user mode, black balance fine adjustment can be performed with the red pedestal/blue pedestal setting after setting the black balance.

[ADJUSTMENT with the RCU (RCB, Hybrid control panel)]

Set the AUTO set switch to ABC and the black balance will be automatically set. While the system is being set, the auto warning indicator (LED) blinks and it goes out when the black balance setting is completed. If the lamp remains lit, ABC should be tried again.



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■ TOTAL PEDESTAL LEVEL ADJUSTMENT

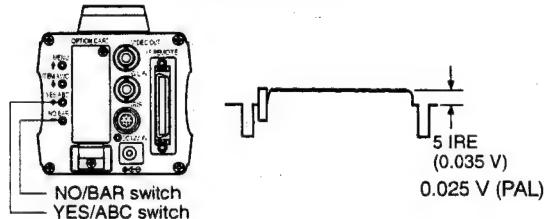
(Use an oscilloscope or a waveform monitor for this adjustment.)

This step is to adjust the black levels (pedestal levels) of two or more cameras to be the same.

[ADJUSTMENT by CAMERA]

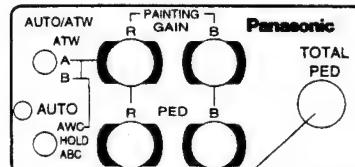
1. Close the lens.
2. Select Pedestal item in the brightness setting Sub Menu (Select [Pedestal] in the [Iris, Shutter, Gain Set] sub menu in USER MODE.)
3. Set the pedestal level to 5IRE (0.035 V) 0.025 V (PAL) with the YES/ABC switch or the NO/BAR switch.

```
**Brightness Set**
Picture Level      ±0
Light PEAK/AVG     0
Light Area          Top cut
Auto ND(ELC)        OFF
Auto Gain Up        OFF
Manu Gain Up        0dB
Pedestal            ±0
Contrast(Gamma)    MID
```



[ADJUSTMENT with RCU (RCB, Hybrid control panel)]

Adjustment the pedestal level to 5IRE, 0.025 V (PAL) with the total pedestal adjustment.



TOTAL PEDESTAL

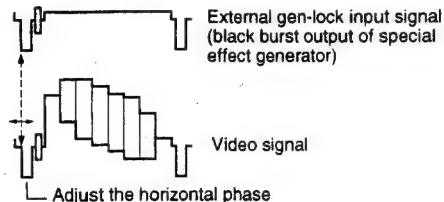
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■ GEN-LOCK ADJUSTMENT

Phase adjustments must be performed with the camera or the RCU (RCB) when external synchronizing signals are supplied to the system in cases where multiple cameras are used or peripheral devices are connected.

● HORIZONTAL PHASE CONTROL

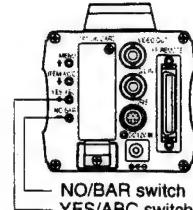
Observe the waveform of the external synchronizing input signal (black burst signal) and video output signal on a two-channel oscilloscope. Then match the horizontal phase of both signals by adjusting them with the cameras or RCU's horizontal phase control.



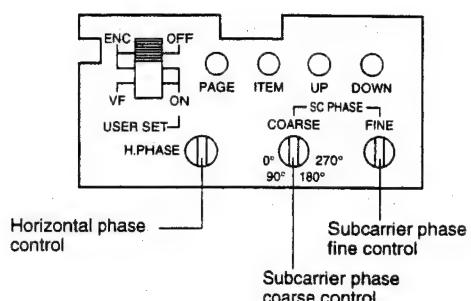
[ADJUSTMENT by CAMERA]

1. Press the NO/BAR switch for over 5 seconds to display the color bar.
2. Select [G/L Adjustment] on the main menu, then select [H PHASE] on the submenu.
3. Adjust the horizontal phase with the YES/ABC and NO/BAR switch.

```
**G/L, Color Bar Set**
H Phase      ±0
SC Coarse    1
SC Fine      ±0
Color Bar Set 7.5IRE
```



[ADJUSTMENT with RCU (RCB, Hybrid control panel)]
Use the horizontal phase control.

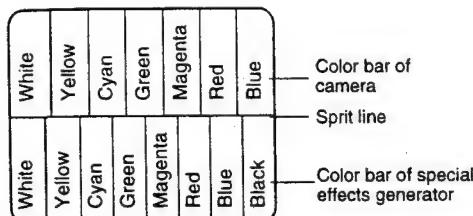


CAUTION:

When horizontal phase adjustment is required using RCU (RCB) or Hybrid Control Panel, BAR/CAM switch should be set to BAR. Horizontal phase cannot be adjusted if the switch is in the CAM position. After adjustment set BAR/CAM switch back to CAM.

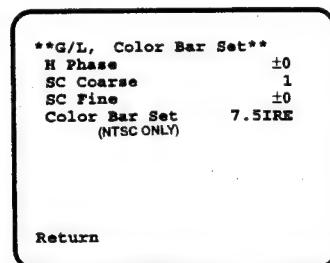
● COLOR PHASE ADJUSTMENT

Supply the output signal (split color bar) from the color special effect generator to a color monitor or vectorscope. Adjust the color phase of the camera.

**[ADJUSTMENT by CAMERA]**

1. Press the NO/BAR switch for over 5 seconds for the color bar mode.
2. Select [G/L Adjustment] on the main menu, then select [SC Coarse] on the sub menu.

3. Make coarse adjustment with the YES/ABC switch and the NO/BAR switch.
4. Select [SC Fine] on the sub menu. Perform fine adjustment with the YES/ABC switch and the NO/BAR switch.



[ADJUSTMENT with RCU (RCB, Hybrid control panel)]
Use the subcarrier phase coarse adjustment control and subcarrier phase fine control.

* It is recommended that a vectorscope be used for maximum accuracy in color phase adjustment.

CAUTION:

When color phase adjustment is required using RCU (RCB) or Hybrid Control Panel, BAR/CAM switch should be set to BAR. Color phase cannot be adjusted if the switch is in the CAM position. After adjustment set BAR/CAM switch back to CAM.

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USE MODE SETTING

■ Use Mode Setting

The camera has four use modes, and various functions for four use modes have been preset.

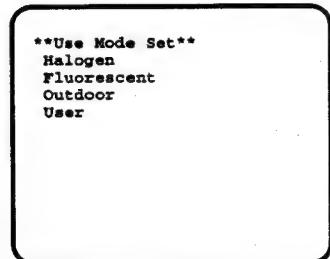
Functions can be set as best suited to each use mode.

- Halogen mode
Suited to indoor shooting, such as at weddings, parties, lecture meetings, events, etc.
Settings can be changed using a simple menu.
- Fluorescent mode
Suited to indoor shooting under fluorescent lighting.
Settings can be changed using a simple menu.
- Outdoor mode
Suited to outdoor shooting.
Settings can be changed using a simple menu.
- User mode
Settings can be changed using a detail menu.

■ SETTING BY CAMERA

1. Turn the camera on while keeping the MENU switch depressed.
The use mode setting menu shown at right appears on the monitor screen and one of the use mode blinks.

2. Press the MENU switch, ITEM/AWC switch, or NO/BAR switch to let the desired use mode blink.
MENU switch (↑): The blinking item moves up by one.
ITEM/AWC switch (↓), NO/BAR switch (-): The blinking item moves down by one.



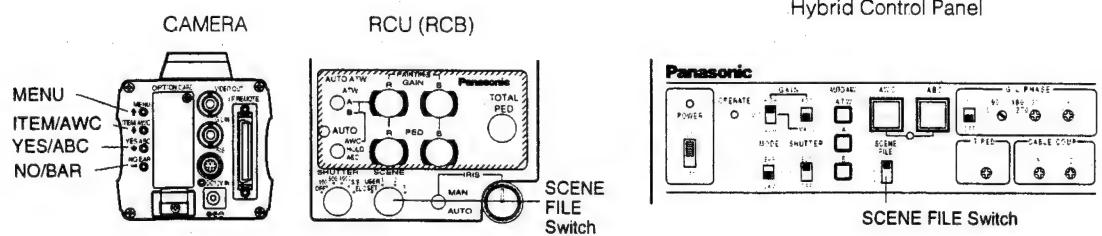
3. Press the YES/ABC switch.
The blinking use mode comes into effect. After the use mode setting menu is shown for about 5 seconds, the camera returns to be ready for operation. Then, the camera operates in the selected use mode.

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■ SETTING BY RCU (RCB) OR HYBRID CONTROL PANEL

An operation mode is selected depending on the position of the scene file switch.

Operation mode	Scene File Switch Position of RCU (RCB)	Scene File Switch Position of Hybrid control panel
Halogen Mode	1	1
Fluorescent Mode	2	2
Outdoor Mode	3	3
User's Mode	USER SET	4



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MENU ITEM SETTING

■ MENU ITEM SETTING

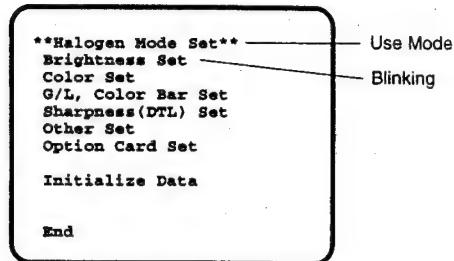
- Each of the four use modes of the camera has a main menu. (Shown at right)
- Each item of the main menu has a submenu, which consists of several settings.
- These settings have been preset to the optimum values to suit each use mode, and can be changed to suit actual shooting conditions.
- They can be set from the camera and RCU (RCB). They can also be set from the hybrid control panel using the switches, but the setting items are limited because the menu is not shown.

Notes:

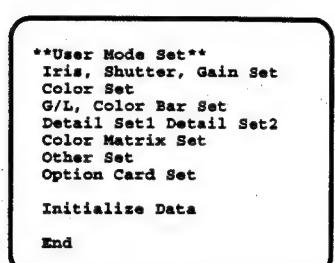
- Composite signals are output from the video output regardless of the position ENC/VF of the RCU (RCB) user set switch.
- [End] is displayed only in setting from the camera alone.
- [Option Card Set] is shown only when an optional card is inserted.

● MAIN MENU SCREEN

Main Menu of Halogen, Fluorescent, Outdoor Mode



Main Menu of User Mode



■ SETTING

1. From the camera alone:

Keep the MENU switch depressed for 5 seconds or more.

From RCU (RCB):

Set the user set switch in the pocket to the ON position.

The main menu appears on the monitor screen.

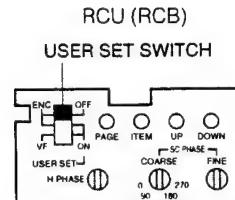
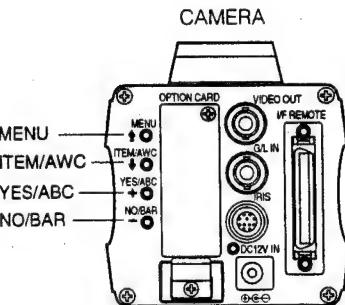
- Each time the MENU switch (↑), ITEM/AWC switch (↓), or NO/BAR switch (→) is pressed, the blinking item moves up or down.
- When the YES/ABC switch is pressed after selecting the desired item to blink, the submenu for the selected item appears on the screen.
- Select the desired item to be changed in its settings using the the MENU switch (↑) and ITEM/AWC switch (↓).
- Press the YES/ABC switch (+) or NO/BAR switch (−) to change the settings.

- Select [Return] using the MENU switch and ITEM/AWC switch, then press the YES/ABC switch to return to the main menu.
- After changing the settings, take the following steps.

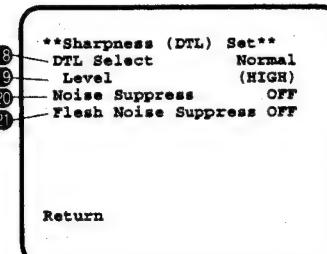
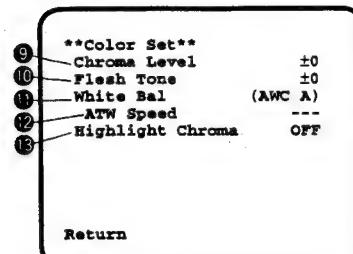
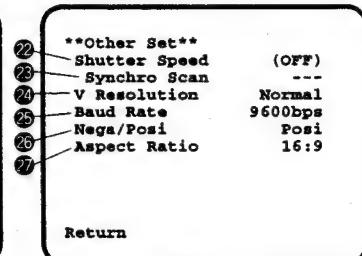
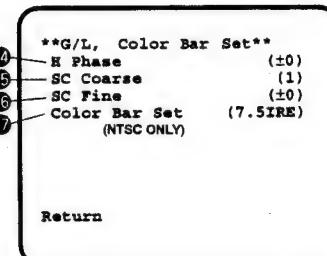
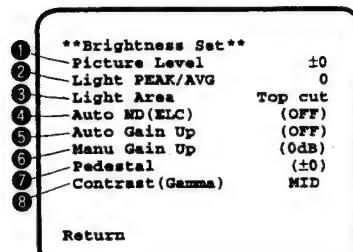
Camera alone: Select [End] using the MENU switch and ITEM/AWC switch and press the YES/ABC switch.

RCU (RCB): Set the user set switch in the pocket to the OFF position.

The camera will now operate according to the new settings.



■ SUB MENU (Halogen Mode, Fluorescent Mode, Outdoor Mode)



- Settings enclosed in parentheses can be set with the RCU (RCB) switch or VR in RCU (RCB) mode.
- To return to the initial settings, refer to page 48.

■ Setting and Changing of the Setting (Halogen Mode, Fluorescent Mode, Outdoor Mode)

① Video Level Adjustment

[Picture Level: -50 - +50]

Convergence level of AUTO IRIS/AUTO GAIN UP/AUTO ND (ELC) can be adjusted.

② Detecting Ratio Adjustment [Light PEAK/AVG: P50 - A50]

The ratio of AUTO IRIS/AUTO GAIN UP/AUTO ND (ELC) detected peak to average can be adjusted within a predetermined range.

③ Photometric Measurement Method Setting [Light Area: All, Center, Top cut, BTM cut, R/L cut]

A photometric measurement method can be selected for AUTO IRIS/AUTO GAIN UP/AUTO ND (ELC).

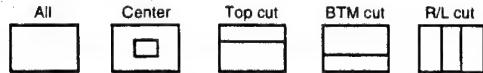
All: All the screen area is measured.

Center: The screen is measured mainly in the center area, about one-third of both the top and bottom and one-third of both the right and left portions of the screen are excluded from measurement.

Top cut: About one-third of the top part of the screen is excluded from measurement.

BTM cut: About one-third of the bottom portion of the screen is excluded from measurement.

R/L cut: About one-third of both the right and left portions of the screen are excluded from measurement.



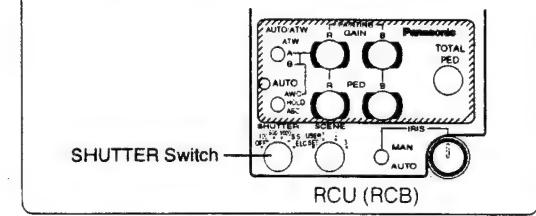
④ Auto ND (ELC) Setting [Auto ND (ELC): ON/OFF]

ON: The electronic shutter is controlled to automatically adjust the luminance.

OFF: Luminance is not automatically adjusted by the electronic shutter.

Notes

- ON is automatically selected when the electronic shutter  on the submenu [Other Set] is set to [Auto ND]. OFF is selected when other than [Auto ND] is selected.
- ON is selected when the SHUTTER switch is set to [ELC] in RCU (RCB) mode, and OFF is selected when it is set to other than [ELC].



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⑤ Auto Gain Up Control Setting [Auto Gain Up: OFF/LOW/HIGH]

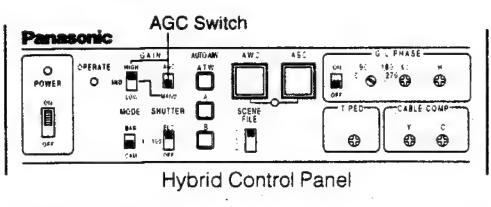
LOW: The Auto Gain Up control with a maximum gain increase of about 18 dB adjust the luminance automatically.

HIGH: The Auto Gain Up control with a maximum gain increase of about 30 dB operates.

OFF: No auto gain up takes place. (Gain can be increased manually.)

Notes

- In case of settings on the camera alone or when the iris switch on the RCU (RCB) is at [AUTO], the Auto Gain Up control may not operate if the lens iris switch is in the manual position.
- When the AGC switch on the hybrid control panel is set to AGC, the Auto Gain Up control operates in the HIGH position.



⑥ Manual Gain Up Control Setting [Manu Gain Up: 0 dB - 30 dB / N/Eye]

Manual setting is possible only when the Auto Gain Up control is in the OFF position.

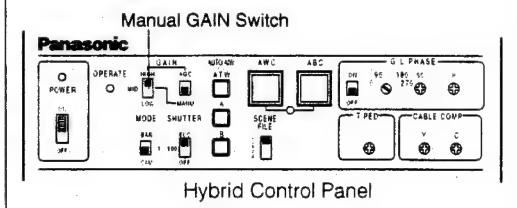
0 dB: 0 dB should be selected in normal cases.

1 dB - 30 dB: Use this range if sufficient video output cannot be obtained even when the lens iris is opened in shooting dark scenes.

N/Eye (Night Eye): Use this mode if sufficient video output cannot be obtained even if 30 dB gain up should be selected.

Notes

- Only 0 dB, 9 dB, or 18 dB can be selected in case of using the RCU (RCB).
- 0 dB when the manual GAIN switch on the hybrid control panel is at LOW, 9 dB when it is at MID, or 18 dB when it is at HIGH.



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⑦ **Black Level Setting [Pedestal: -30 - +30]**

The black level (pedestal) of the luminance (Y) signal can be set. Used in adjusting the black levels of two or more cameras.

⑧ **Contrast Adjustment [Contrast (Gamma): LOW/MID/HIGH]**

Contrast can be adjusted to any of three levels.

⑨ **Chroma Level Adjustment [Chroma Level: -3 - +3]**

Chroma Level can be decreased or increased to any of three levels each.

⑩ **Skin Color Adjustment [Flesh Tone: -3 - +3]**

Skin color can be decreased or increased to any of three levels each.

⑪ **White Balance Setting [White Bal: ATW/AWC A/ AWC B/P SET 3 200K/P SET 5 600K]**

ATW: The white balance is automatically adjusted to be always right.

AWC A, AWC B: Once the white balance is adjusted with the ITEM/AWC switch on the back of the camera, it is no longer necessary to set the white balance again if you simply select AWC A or AWC B, provided that the camera is used under the same conditions.

Fine color adjustment can be made after setting AWC by red/blue gain adjustment in user mode or from the RCU (RCB).

P SET 3 200K: The white balance is adjusted to 3 200K illumination.

P SET 5 600K: The white balance is adjusted to 5 600K illumination.

Note

Neither P SET 3 200K nor P SET 5 600K can be set from the RCU (RCB) or the hybrid control panel.

⑫ **ATW Speed Setting [ATW Speed: SLOW 2/ SLOW 1/MIDDLE/FAST 1/ FAST 2]**

ATW Speed can be set.

⑬ **Highlight Chroma Setting [Highlight Chroma: OFF/LOW/HIGH]**

At LOW or HIGH, the color dynamic range widens to prevent highlighted white portions from suppression.

⑭ **Horizontal Phase Adjustment**

[H Phase: -511 - +511]

Horizontal phase can be adjusted when a genlock signal is supplied.

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⑮ **Sub Carrier Phase Coarse Adjustment**

[SC Coarse: 1/2/3/4]

Coarse adjustment of subcarrier phase can be made when a genlock signal is supplied.

⑯ **Subcarrier Phase Fine Adjustment [SC Fine: -511 - +511]**

Fine adjustment of subcarrier phase can be made when a genlock signal is supplied.

⑰ **Color Bar Setup Setting [Color Bar Set: 0.0 IRE/7.5 IRE] (NTSC ONLY)**

The setup level of color bar can be adjusted.

⑲ **Detail Select Setting [DTL Select: Normal/Super DTL]**

If contour correction is not sufficient at the Normal position when Detail Level setting ⑲ is set to LOW or HIGH, select the Super DTL position.

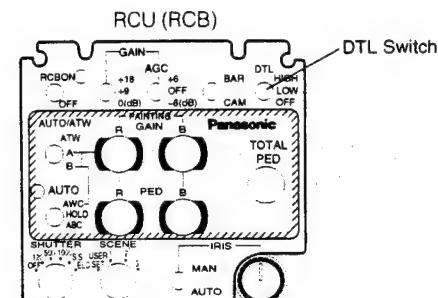
Note

Neither Normal nor Super DTL is valid for contour correction if Detail Level setting ⑲ is in the OFF position.

⑲ **Detail Level Setting [Level: OFF/LOW/HIGH]**

Detail level can be adjusted when Detail Select setting ⑲ is at Normal. Super DTL level can be adjusted when it is at Super DTL.

In case of using the RCU (RCB), the above can be adjusted with the contour correction switch (DTL).



⑳ **Noise Suppress Level Setting [Noise Suppress: OFF/LOW/HIGH]**

Screen noise can be reduced when Detail Level setting ⑲ is at HIGH or LOW.

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① Flesh Noise Suppress Level Setting [Flesh Noise Suppress: OFF/LOW/HIGH]

Flesh noise is suppressed in two steps when the DTL Level is at HIGH or LOW.

② Electronic Shutter Setting [Shutter Speed: OFF/1/100 to 1/10 000/S/Scan/Auto ND] (NTSC ONLY)

OFF: Electronic shutter is turned off.

1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, 1/10 000:

Electronic shutter operates at one of these speeds as selected.

S/Scan (Synchro Scan): Electronic shutter operates at the speed set with the electronic shutter synchro-scan setting ②.

Auto ND: Electronic shutter is controlled to automatically adjust the luminance. (ELC)

Note

- In case of using the RCU (RCB), none of the shutter speeds 1/250, 1/2000, 1/4000, and 1/10 000 can be selected.
- In case of using the hybrid control panel, only OFF, 1/100, or Auto ND (ELC) can be selected.
- If the lens iris switch is at M (Manual) when operating the camera alone or when the iris switch on the RCU (RCB) is at AUTO, Auto ND may not function. Set the lens iris switch to A (Auto).
- Flickering may increase at Auto ND under fluorescent lights.
- Auto ND is automatically selected if Auto ND (ELC) setting ④ is set to ON.

③ Electronic Shutter Synchro Scan Setting

[Synchro Scan: 60.34Hz - 15.75kHz]

This setting is possible only when Electronic Shutter setting ② is at S/Scan.

Horizontal bar noise can be reduced by synchro-scan adjustment in shooting workstation scenes, for example.

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- For luminance settings at each shutter speed and synchro-scan shutter speed, refer to the table below.

Shutter Speed	Synchro-scan	Required luminance ratio
OFF	—	1
1/100	100.3 Hz	2
1/250	250.0 Hz	4
1/500	492.2 Hz	8
1/1 000	984.4 Hz	16
1/2 000	1.969 kHz	32
1/4 000	3.938 kHz	64
1/10 000	7.875 kHz	160

④ CCD Read Out Mode Setting [V Resolution: Normal/Fine]

Normal: Normal image. (CCD storage will be by field storage.)

Fine: Vertical resolution increases. (Vertical resolution is raised without increasing residual images by frame storage and Electronic shutter.)

Normal is recommended for general use because sensitivity will decrease at the Fine setting.

⑤ PC Control Access Speed Setting [Baud Rate: 1 200bps/2 400bps/4 800bps/9 600bps]

Select a communication speed in controlling the camera from the computer.

⑥ Negative/Positive Selection

[Nega/Posi: Posi/Nega]

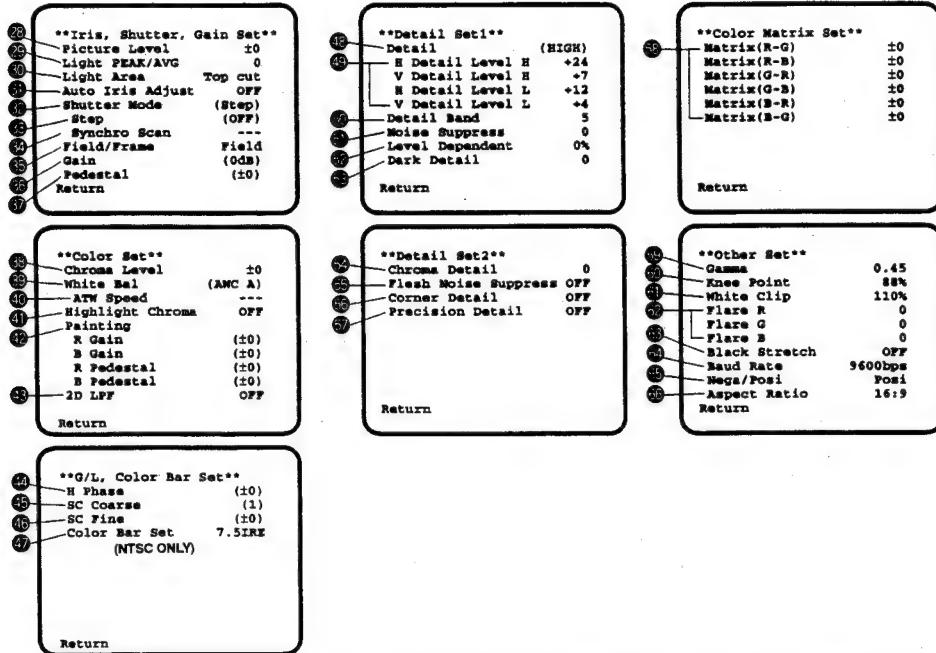
Posi: Normal image

Nega: Image is shown reversed in darkness and color.

⑦ Aspect Ratio Selection [Aspect Ratio: 16:9/4:3]

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■ Sub Menu (User Mode)



- Settings enclosed in parentheses can be set with the RCU (RCB) switch or VR in RCU (RCB) mode.
- To return to the initial settings, refer to page 48.

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■ Setting and Changing of the Setting Items (User Mode)

② Video Level Adjustment [Picture Level]:

-50 - +50]

Convergence level of AUTO IRIS/AGC/ELC can be adjusted.

③ Detecting Ratio Adjustment [Light PEAK/AVG: P50 - A50]

The ratio of AUTO IRIS/AGC/ELC detected peak to average can be adjusted within a range.

④ Photometric Measurement Method Setting [Light Area: All, Center, Top cut, BTM cut, R/L cut]

A photometric measurement method can be selected for AUTO IRIS/AGC/ELC.

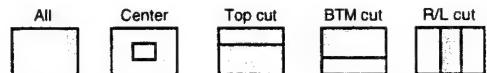
All: All the screen area is measured.

Center: The screen is measured mainly in the center area, about one-third of both the top and bottom and one-third of both the right and left portions of the screen are excluded from measurement.

Top cut: About one-third of the top portion of the screen is excluded from measurement.

BTM cut: About one-third of the bottom portion of the screen is excluded from measurement.

R/L cut: About one-third of both the right and left portions of the screen are excluded from measurement.

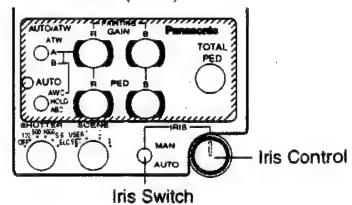


⑤ Auto Iris Level Fine Adjustment [Auto Iris Adjust: ON/OFF]

ON: Fine adjustment of auto iris convergence level can be made with the iris control when the iris switch on the RCU (RCB) or on the hybrid control panel is in the AUTO position.

OFF: The iris control is invalid when the iris switch on the RCU (RCB) or on the hybrid control panel is in the AUTO position.

RCU (RCB)



② Electronic Shutter Mode Setting [Shutter Mode: Step/ELC/S/Scan]

Step: Electronic shutter operates at the speed selected by the Electronic Shutter Step Setting ③.

ELC: Electronic shutter is controlled to automatically adjust the luminance.

S/Scan (Synchro Scan): Electronic shutter operates at the speed selected in Electronic Shutter Synchro-Scan Setting ④.

Note

If Frame 1 is selected in CCD Read Out Mode Setting ⑤, Electronic Shutter Mode Setting cannot be added.

③ Electronic Shutter Step Setting

[Step: OFF/1/100 - 1/10 000]

This setting is possible only when Step is selected in Electronic Shutter Mode Setting ②.

OFF: Electronic shutter is turned off.

1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000,

1/10 000: Electronic shutter operates at one of these speeds as selected.

Notes

- In case of using the RCU (RCB), none of the shutter speeds 1/250, 1/2 000, 1/4 000, and 1/10 000 can be selected.
- In case of using the hybrid control panel, only OFF, 1/100, or ELC can be selected.
- If the lens iris switch is at M (Manual) when operating the camera alone or when the iris switch on the RCU (RCB) is at AUTO, ELC may not function. Set the lens iris switch to A (Auto).
- Flickering may increase at ELC under fluorescent lights.

④ Electronic Shutter Synchro Scan Setting

[Synchro Scan: 60.34Hz - 15.75kHz]

This setting is possible only when Electronic Shutter Mode Setting ② is at S/Scan.

Bar noise can be reduced by synchro-scan adjustment in shooting workstation scenes, for example.

- For luminance setting at each shutter speed and synchro-scan shutter speed, refer to the table on the next page.

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Shutter Speed	Synchro-scan	Required luminance ratio
OFF	—	1
1/100	100.3 Hz	2
1/250	250.0 Hz	4
1/500	492.2 Hz	8
1/1 000	984.4 Hz	16
1/2 000	1.969 kHz	32
1/4 000	3.938 kHz	64
1/10 000	7.875 kHz	160

⑤ CCD Read Out Mode Setting [Field/Frame: Field/Frame 1/Frame 2]

Field: CCD storage will be by field storage.

Frame 1: Vertical resolution increases in frame storage.

Frame 2: Vertical resolution is raised without increasing residual images by frame storage and electronic shutter.

⑥ Gain Up Setting [Gain: AGC HIGH/AGC LOW/0 dB - 30 dB / N/Eye]

AGC LOW: The Auto Gain Up control with a maximum gain increase of about 18 dB adjusts the luminance automatically.

AGC HIGH: The Auto Gain Up control with a maximum gain increase of about 30 dB operates.

0 dB: 0 dB should be selected in normal cases.

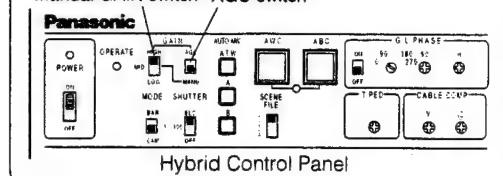
1 dB - 30 dB: Use this range if sufficient video output cannot be obtained even when the lens iris is opened in shooting dark scenes.

N/Eye (Night Eye): Use this mode if sufficient video output cannot be obtained even if 30 dB gain up should be selected.

Notes

- Only 0 dB, 9 dB, or 18 dB, AGC LOW, AGC HIGH can be selected in case of using the RCU (RCB). If the lens iris switch is at MANUAL, when operating the camera alone or when the iris switch on the RCU (RCB, Hybrid control panel) is at AUTO, AGC may not function.
- AGC HIGH when the AGC selection switch on the hybrid control panel is at AGC.
- 0 dB when the manual gain switch on the hybrid control panel is at LOW, 9 dB when it is at MID, or 18 dB when it is at HIGH.

Manual GAIN switch AGC switch



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⑦ **Black Level Setting [Pedestal: -30 - +30]**

The black level (pedestal) of the luminance (Y) signal can be set. Used in adjusting the black levels of two or more cameras.

⑧ **Chroma Level Adjustment [Chroma Level: -3 - +3]**

Chroma Level can be decreased or increased to three levels.

⑨ **White Balance Setting [White Bal: ATW/AWC A/ AWC B/P SET 3 200K/P SET 5 600K]**

ATW: The white balance is automatically adjusted to the optimum position.

AWC A, AWC B: Color temperature conditions at two points can be stored at AWC A and AWC B. Once the white balance is adjusted with the ITEM/AWC switch on the back of the camera, it is no longer necessary to set the white balance again if you simply select AWC A or AWC B, provided that the camera is used under the same conditions.

Fine color adjustment can be made after setting AWC by red/blue gain adjustment in Painting Setting ⑩ or from the RCU (RCB).

P SET 3 200K: The white balance is adjusted to 3 200K illumination.

P SET 5 600K: The white balance is adjusted to 5 600K illumination.

⑩ **ATW Speed Setting [ATW Speed: SLOW 2/ SLOW 1/MIDDLE/FAST 1/FAST 2]**

ATW Speed can be set.

Note

Neither P SET 3 200K nor P SET 5 600K can be set from the RCU (RCB) or the hybrid control panel.

⑪ **Highlight Chroma Setting [Highlight Chroma: OFF/LOW/HIGH]**

At LOW or HIGH, the color dynamic range widens to prevent highlighted white portions from suppression.

⑫ **Painting Setting [Painting: R Gain, B Gain, R Pedestal, B Pedestal: -30 - +30]**

R Gain, B Gain:

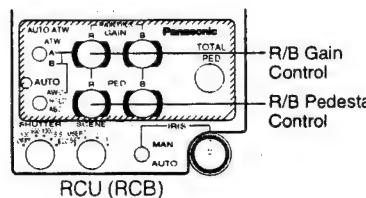
Fine adjustment of the white balance can be made after AWC setting when AWC A or AWC B is selected in White Balance Setting ⑨. In case of using the RCU (RCB), use the R/B gain controls for this purpose. The set value returns to ± 0 after AWC setting in using the camera alone.

R Pedestal, B Pedestal:

Fine adjustment of the black balance can be made after ABC setting.

In case of using the RCU (RCB), use the R/B pedestal controls for this purpose. The set value returns to ± 0 after ABC setting in using the camera alone.

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⑬ **2-dimensional Lowpass Filter Setting [2D LPF: OFF/LOW/HIGH]**

The 2D lowpass filter that reduces moire and cross color can be set.

⑭ **Horizontal Phase Adjustment [H Phase: -206 - +49]**

Horizontal phase can be adjusted when a genlock signal is supplied.

⑮ **Subcarrier Phase Coarse Adjustment [SC Coarse: 1/2/3/4]**

Coarse adjustment of subcarrier phase can be made when a genlock signal is supplied.

⑯ **Subcarrier Phase Fine Adjustment [SC Fine: -511 - +511]**

Fine adjustment of subcarrier phase can be made when a genlock signal is supplied.

⑰ **Color Bar Setup Setting [Color Bar Set: 0.0 IRE/7.5 IRE]**

The setup level of color bar can be adjusted.

⑱ **Detail Level Setting [Detail: OFF/LOW/HIGH]**

Contour correction quantity can be selected. Detail settings made using the Horizontal/Vertical Detail Level HIGH/LOW Setting ⑲.

⑲ **Horizontal/Vertical Detail Level HIGH/LOW Setting**

[H Detail Level H: +1 - +63]

[V Detail Level H: +1 - +31]

[H Detail Level L: 0 - +62]

[V Detail Level L: 0 - +30]

Detail level can be set in horizontal (H) and vertical (V) directions with the Detail Level Setting ⑲ at HIGH or LOW.

Whichever the direction, H or V, the set level at HIGH must be at least one position higher than that at LOW.

⑳ **Detail Band Setting [Detail Band: 1 - 5]**

A contour correction band can be set with the Detail Level Setting ⑲ at HIGH or LOW. The higher setting, the finer will be the detail.

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④ Noise Suppress Compensation Level Setting

[Noise Suppress: 1 - 10]

Screen noise can be reduced with the Detail Level Setting ④ at HIGH or LOW. If the noise suppress compensation level is set too high, a fine object will be reproduced less sharply.

⑤ Level Dependent Compensation Level Setting

[Level Dependent: 0% - 25%]

Screen noise due to the detail of dark parts of an object can be reduced. If level dependent compensation level is set too high, however, hair, for example, will be reproduced less sharply.

⑥ Dark Detail Compensation Level Setting [Dark Detail: 0 - 5]

The contours of the darker portions of an object can be emphasized. This setting is possible only when the Level Dependent Compensation Level Setting ⑤ is set to 0 %.

⑦ Chroma Detail Compensation Level Setting

[Chroma Detail: 0 - 15]

The contours of high-hue portions of an object can be emphasized.

⑧ Flesh Noise Suppress Level Setting [Flesh Noise Suppress: OFF/LOW/HIGH]

Flesh noise is suppressed in two steps when the DTL Level is at HIGH or LOW.

⑨ Corner Detail Setting [Corner Detail: OFF/ON]

Corner detail, which improves the resolution of corners, can be turned on or off when the Detail Level Setting ④ is at HIGH or LOW.

⑩ Precision Detail Level Setting [Precision Detail: OFF/LOW/HIGH]

This setting is to narrow detail width and suppress detail glare.

⑪ Color Matrix Compensation Level Setting

[Matrix (R-G) / (R-B) / (G-R) / (G-B) / (B-R) / (B-G): -31 - +31]

Color Matrix compensation level can be adjusted. **(R-G):** To increase or decrease the intermediate color between red and magenta **(R-B):** To increase or decrease the intermediate color between red and yellow

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(G-R): To increase or decrease the intermediate color between green and cyan

(G-B): To increase or decrease yellowish green

(B-R): To increase or decrease the intermediate color between blue and cyan

(B-G): To increase or decrease purple

⑫ Gamma Correction Level Setting

[Gamma: 0.35 - 0.55]

Gamma correction level can be set.

⑬ Knee Compensation Level Setting [Knee Point: 88% - 98%/Dynamic]

88% - 98%: The level of video signals subject to knee compensation (knee point) can be set.

Dynamic: Knee compensation level is automatically adjusted according to the scene.

⑭ White Clip Level Setting [White Clip: 95% - 110%]

The peak level of video signals to be white-clipped can be set.

⑮ Flare Correction Level Setting [Flare R/G/B: 0 - 100]

Flare correction level can be adjusted.

* Flare correction level has already been adjusted prior to shipment from the factory.

⑯ Black Stretch Setting [Black Stretch: ON/OFF]

Black stretch to correct the suppression of black portions at low luminance can be set to ON or OFF.

⑰ PC Control Access Speed Setting [Baud Rate: 1 200bps/2 400bps/4 800bps/9 600bps]

This setting is to select a communication speed in controlling the camera from the computer.

⑱ Negative/Positive Selection [Nega/Posi: Posi/Nega]

Posi: Normal image

Nega: Image is shown reversed in darkness and color.

Note

When an option card is added, only the composite output and Y/C output will be reproduced in negative image.

⑲ Aspect Ratio Selection [Aspect Ratio: 16:9/4:3]

SETTING TO INITIAL SET

■ Setting to initial set

In case of the wrong setting in any use mode, take the following steps to return to the initial settings.

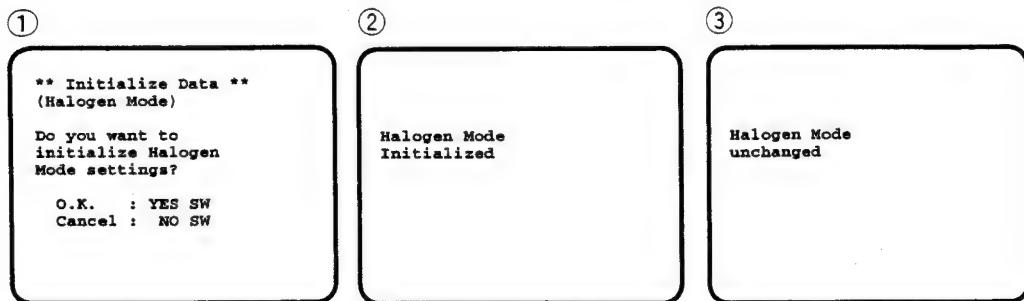
- (1) Select [Initialize Data] on the main menu screen of each Use Mode. (See page 29.)
Press the YES/ABC switch, then [Initialize Data] screen shown for about 10 seconds.
- (2) Press the YES/ABC switch within about 10 seconds to return to the initial settings, the existing settings

are initialized, the screen shown at ②, and the camera returns to main menu.

- (3) If the NO/BAR switch is pressed, or if the YES /ABC switch is not pressed, within about 10 seconds, the screen shown at ③, and the camera returns to main menu, and the existing settings are not initialized.

Note

If you are using an option card, the Option Card Setting Submenu will not be initialized even if "Return to Initialize" is performed.



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■ INITIAL SETTINGS OF THE SETTING ITEMS (Factory preset values)

● Halogen, Fluorescent, Outdoor Mode

	Item	Halogen mode	Fluorescent mode	Outdoor mode
Brightness Set	Picture Level Light PEAK/AVG Light Area Auto ND (ELC) Auto Gain Up Manu Gain Up Pedestal Contrast (Gamma)	±0 0 Top cut OFF OFF 0dB ±0 MID	±0 0 Top cut OFF OFF 0dB ±0 MID	±0 0 Top cut ON HIGH --- -10 MID
Color Set	Chroma Level Flesh Tone White Bal ATW Speed High-light Chroma	±0 ±0 AWC A --- OFF	+1 ±0 AWC A --- OFF	+2 ±0 ATW MIDDLE OFF
G/L, Color Bar Set	H Phase SC Coarse SC Fine Color Bar Set (NTSC ONLY)	±0 1 ±0 7.5 IRE	±0 1 ±0 7.5 IRE	±0 1 ±0 7.5 IRE
Sharpness (DTL) Set	DTL Select Level Noise Suppress Flesh Noise Suppress	Normal HIGH OFF OFF	Normal HIGH OFF OFF	Normal HIGH OFF OFF
Other Set	Shutter Speed Synchro Scan V Resolution Baud Rate Nega/Posi Aspect Ratio	OFF --- Normal 9 600bps Posi 16:9	OFF --- Normal 9 600bps Posi 16:9	Auto ND --- Normal 9 600bps Posi 16:9

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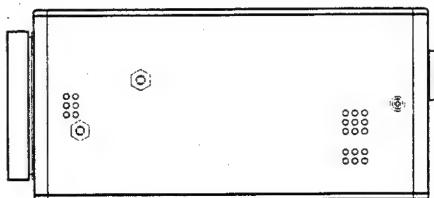
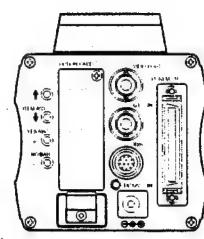
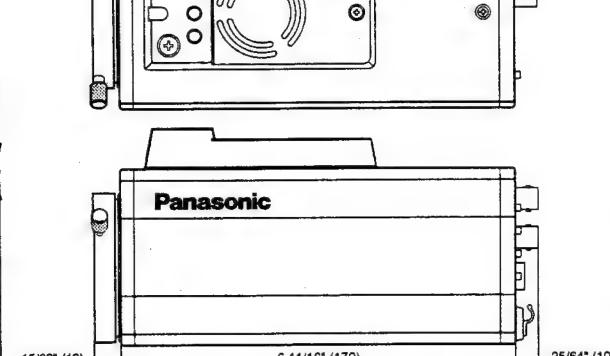
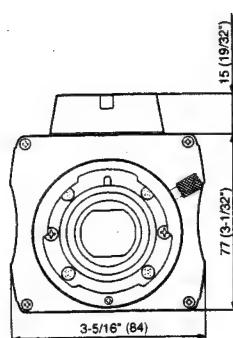
● User Mode

	Item	User mode		Item	User mode
Iris, Shutter, Gain Set	Picture Level	±0	Detail Set 2	Chroma Detail	0
	Light PEAK/AVG	0		Flesh Noise Suppress	OFF
Color Set	Light Area	Top cut	Color Matrix Set	Corner Detail	OFF
	Auto Iris Adjust	OFF		Precision Detail	OFF
G/L, Color Bar Set	Shutter Mode	Step	Other Set	Matrix(R-G)	±0
	Step	OFF		Matrix(R-B)	±0
Detail Set 1	Synchro Scan	---		Matrix(G-R)	±0
	Field/Frame	Field		Matrix(G-B)	±0
Detail Set 1	Gain	0dB		Matrix(B-R)	±0
	Pedestal	±0		Matrix(B-G)	±0
Detail Set 1	Chroma Level	±0	Other Set	Gamma	0.45
	White Bal	AWC A		Knee Point	88%
Detail Set 1	ATW Speed	---		White Clip	110%
	High-light Chroma	OFF		Flare R	0
Detail Set 1	Painting R Gain	±0		Flare G	0
	B Gain	±0		Flare B	0
Detail Set 1	R Pedestal	±0		Black Stretch	OFF
	B Pedestal	±0		Baud Rate	9600bps
Detail Set 1	2D LPF	OFF		Nega/Posi	Posi
	H Phase	±0		Aspect Ratio	16 : 9
Detail Set 1	SC Coarse	1			
	SC Fine	±0			
Detail Set 1	Color Bar Set (NTSC ONLY)	7.5 IRE			

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APPEARANCE

Unit: inch (mm)



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SECTION 2

DISASSEMBLY

SERVICE INFORMATION

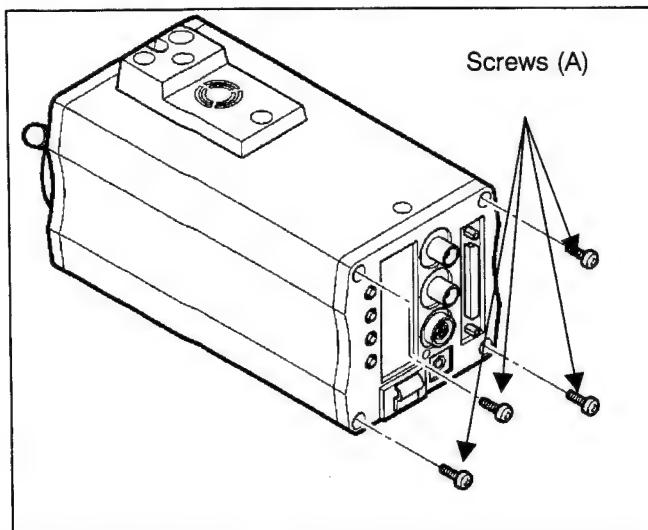
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DRIVE P.C.BOARD	INF-3
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1. Disassembly Procedures

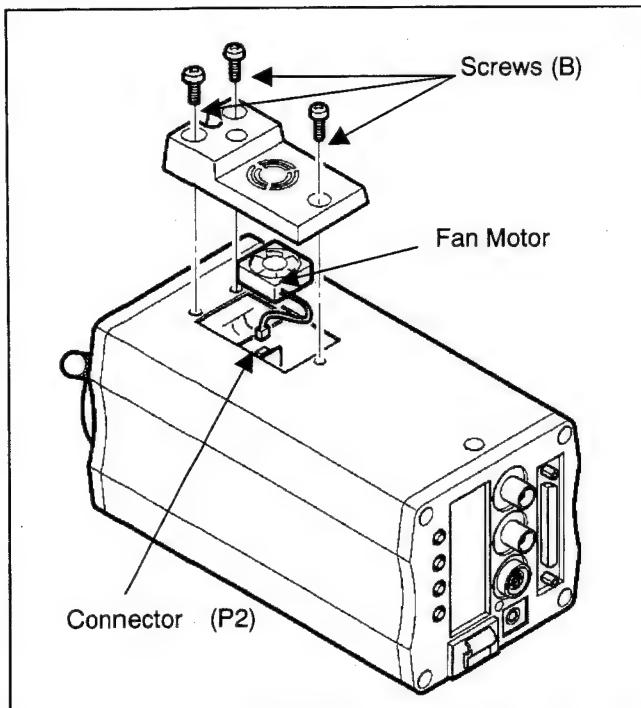
1-1. Removal of Rear Panel

1. Unscrew 4 screws (A) and remove the Rear Panel.



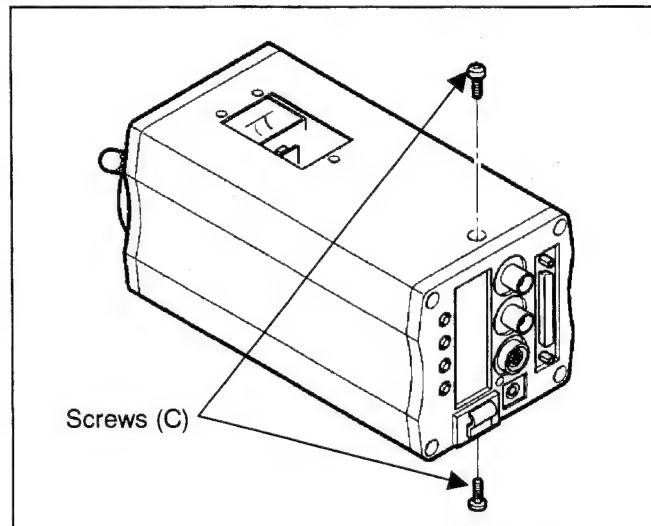
1-2. Removal of Fan Motor

1. Unscrew 3 screws (B) on the Fan Motor Case.
2. Disconnect the Fan Motor Connector (P2) and remove the Fan Motor.

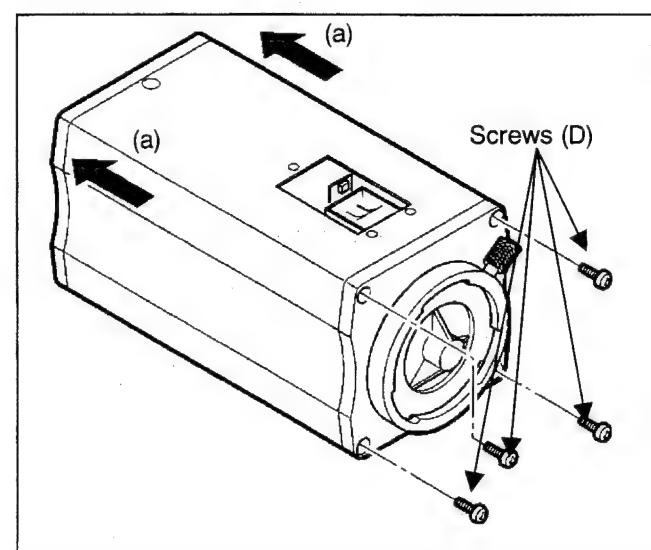


1-3. Removal of Case

1. Unscrew 2 screws (C).



2. Unscrew 4 screws (D) and remove the case in the direction indicated by arrow (a).



2. Maintenance

The AW-E800A contains the fan motor.

The following is a recommendation to replace it.

Part number

L6FAHBAH003

Expected life

30,000 hours (Using Hours)

3. Verifying Software Version

1. Open the RAM editor by turning on power while pressing ITEM and YES buttons simultaneously.
2. The following menu (RAM Editor) appears on the video output.

RAM Editor	English
→ FFE100 00	NTSC
FFE101 00	NTSC
FFE102 02	Menu display
FFE103 10	Selection
FFE104 00	(J/E)
FFE105 80	
FFE106 00	NTSC/PAL
FFE107 01	Selection
FFE108 00	
FFE109 FE	

RAM address Data

3. Move the cursor with ITEM/AWC switch (↓). (Cursor = character blinks)
4. Press YES/ABC switch (+) to scroll up the data or NO/BAR switch (-) to scroll down the data. Select RAM address and data line by line.
5. To check the software, change the RAM address to FFFF70. The address data shows the version of the software.

Note: Address data is expressed in a hex number.

4. Updating Software Version

1. Install the new version software (ROM) on the ROM changer board.
2. Connect the board to the 50P connector on the body as shown in the figure.
3. Set the Baud Rate switch on the ROM changer board to the center position.
Since write protection is not activated, write operation can be started regardless of WRITE/PROTECT selection.
4. Turn on power of the camera. Then the green LED on the board blinks.
5. Press the START button. Then the green LED on the board turns off and the red LED will blink at random. If erase the program and then write new program. (*1)
6. Confirmation of completion:
 - (a) Green LED lights: completed successful
 - (b) Red LED, green LED blinks: error

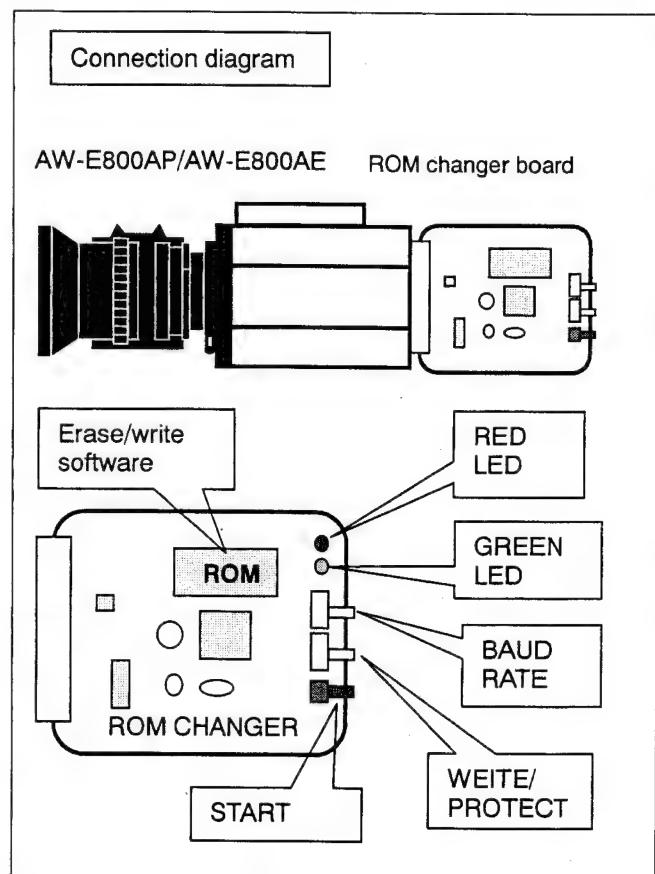
After completed successfully, the camera goes into the sleep mode. It will start after power is turned off and then on again.

Turn off power and remove the board.

If it was error, press the START button to re-write. (*2)

(*1) If the operation ends with an error after writing, it is impossible to re-write once power of the camera is turned off. Try writing again by pressing START button.

(*2) In case of an error (red LED won't blink) after START, turn power off, set the BAUD RATE switch to either position and retry writing. Normally, used at "0" position but another position may be effective.

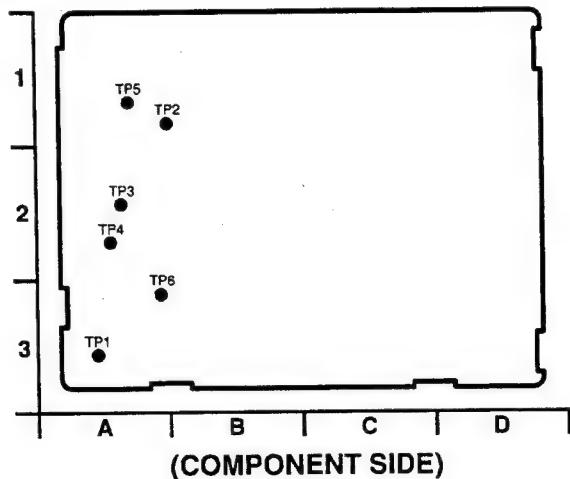


State of LED

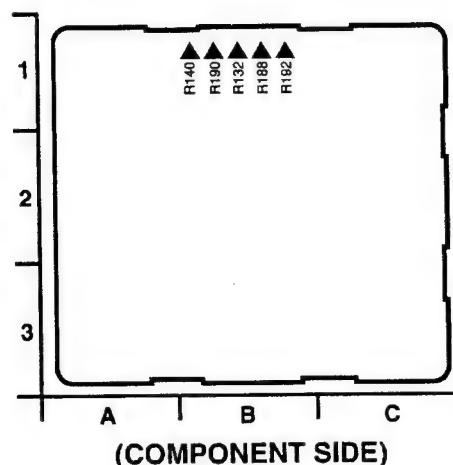
	Green LED	Red LED
Initial status	Blinks	Unlit
Erase after start	Unlit	Blinks
Write after start	Unlit	Blinks at random
Normal completion	Lights	Unlit
Abnormal completion	Blinks	Lights

TP,VR,SW Location

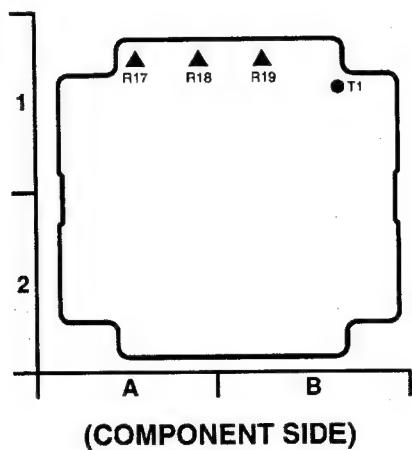
POWER P.C.BOARD



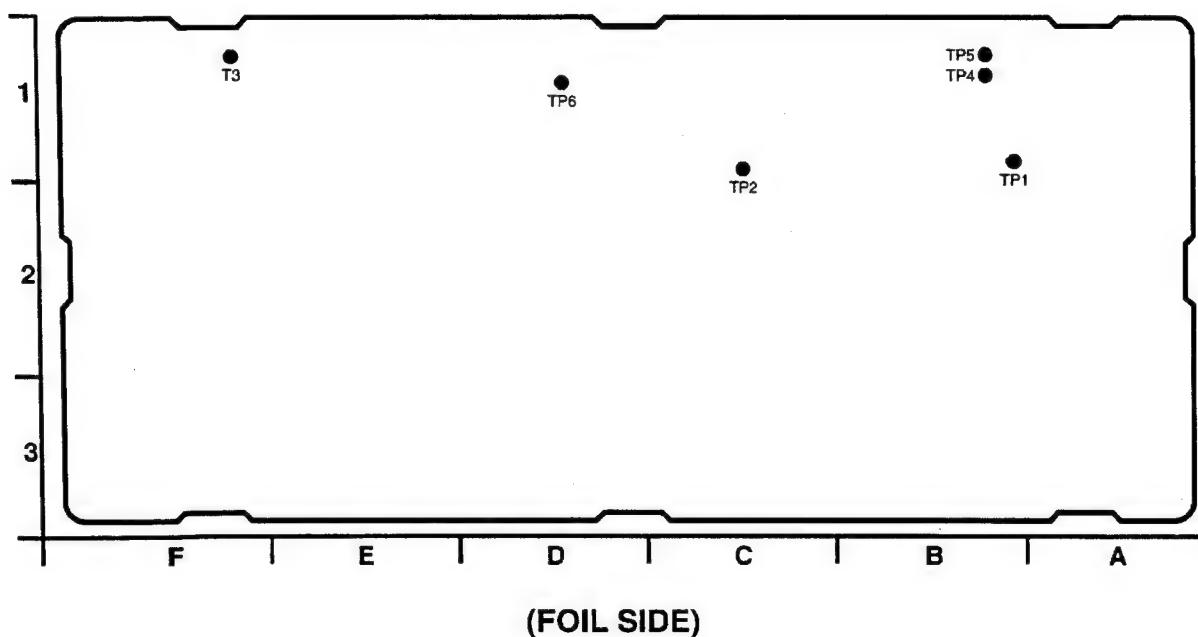
ENC P.C.BOARD



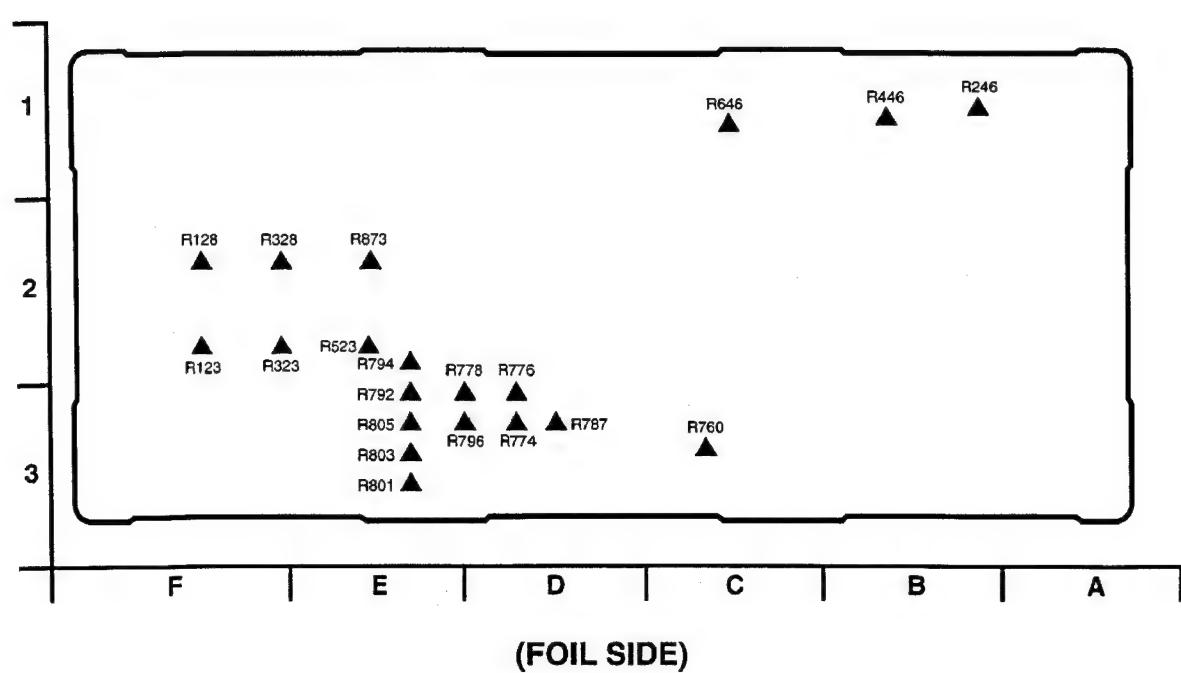
DRIVE P.C.BOARD



DSP P.C.BOARD



ANALOG PROCESS P.C.BOARD



SECTION 3

ELECTRICAL ADJUSTMENT

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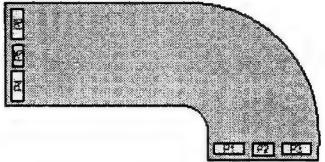
1. Electrical Adjustment Procedures

1-1. Recommended Measurement Equipment (M.EQ) and Servicing Fixtures

To perform the electrical adjustment completely the following equipment and fixtures are required.

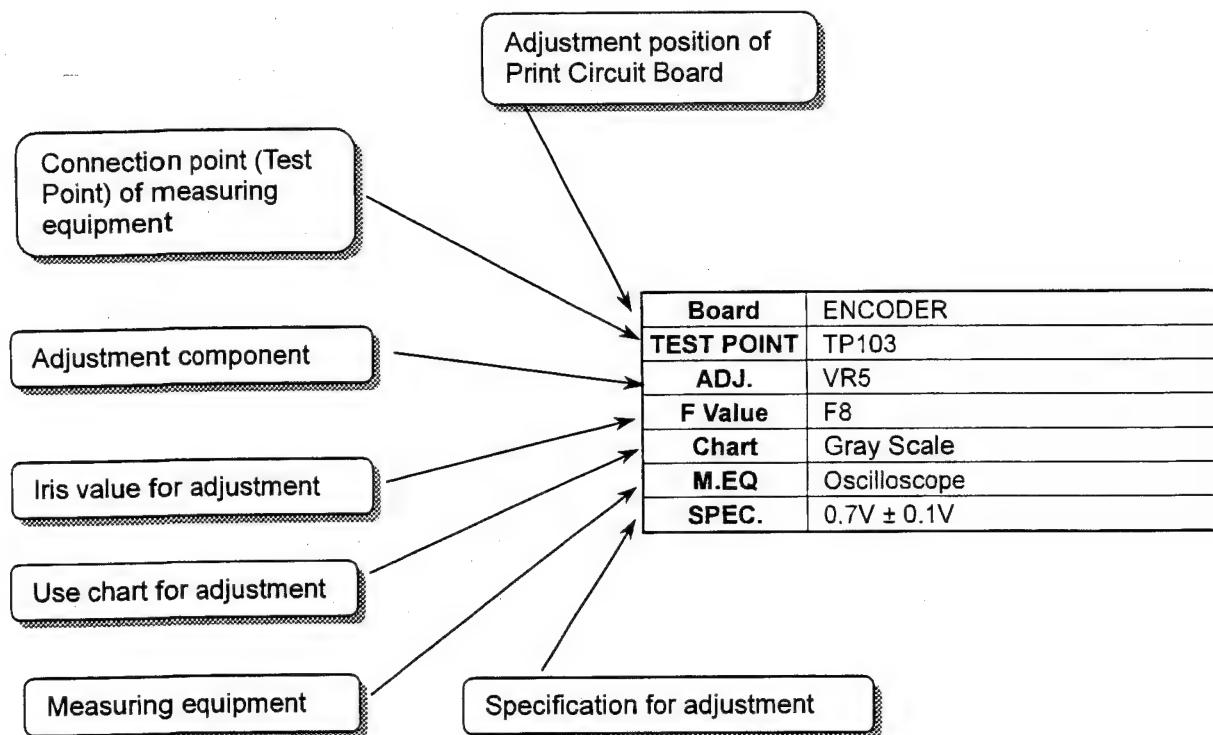
No.	NAME	MODEL No.	REMARK
1	Oscilloscope		
2	Waveform monitor (WFM)	Tektronix 1750,1760, 1780	
3	Vector Scope	Tektronix 1750,1760, 1780	With SCH Meter
4	Frequency Counter		
5	Monitor TV		Underscannde
6	Gray Scale Chart	VFK0645	
7	Halogen Lamp		
8	Lux Meter		
9	Signal Generator		
10	Auto Iris Lens		
11	AC Adapter		
12	Extension Board		Refer to Blow

1-2. Extension Board

Part No.	Connection	Diagram	Remark
0E1A055A	JOINT – PREPROCESS JOINT – DSP/ENCODER		
0E1A056A	DSP – DRIVE		
0E1A057A	DSP – DRIVE		
0E1A058A	DSP – ENCODER		

Part No.	Connection	Diagram	Remark
0E1A059A	G CCD – ANALOG PROCESS B CCD – G CCD R CCD – G CCD R CCD – DRIVE		ONE SET
	G CCD – DRIVE		
	G CCD – ANALOG PROCESS		

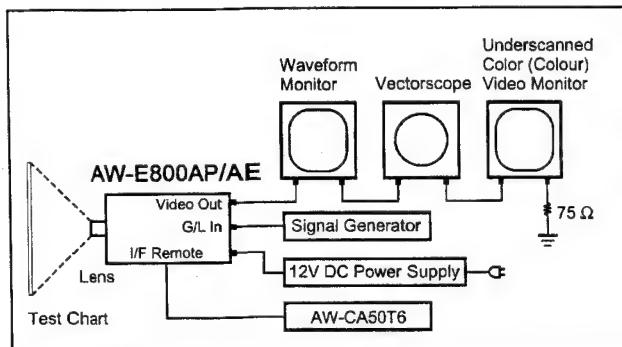
1-3. How to Read the Adjustment Procedures Table



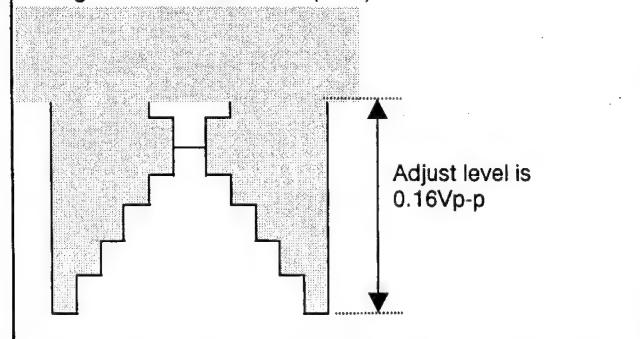
2. Preparation

2-1. Connection

Connect the equipment as shown in below.



Analog Process Board E301 (G IN)



The adjustment should be done with this standard picture, unless otherwise specified.

3. Adjustment procedure

3-1. DSP P.C. Board

3-1-1. Internal Frequency Adjustment

BOARD	DSP
TEST POINT	TP6
ADJ.	R140 (ENCODE P.C. Board)
F VALUE	_____
CHART	_____
M.EQ	Frequency Counter
SPEC.	28.636364MHz ± 10Hz

1. Adjust R140 so that the internal frequency becomes 28.636364 MHz ± 10Hz.

3-2. DRIVE P.C. Board

3-2-1. V SUB Voltage Adjustment

BOARD	DRIVE
TEST POINT	E3 (B ch), E2 (G ch), E1 (R ch)
ADJ.	R123 (VSUB B) R323 (VSUB G) R523 (VSUB R)
F VALUE	Open
CHART	_____
M.EQ	Oscilloscope
SPEC.	Refer to Voltage value seal on the CCD Unit

1. Determine the adjustment value of R, G and B by referring to "Voltage value seal" affixed on the CCD unit.

3-3. Analog Process P.C. Board

3-3-1. G Ch CCD Output Adj.

BOARD	Analog Process P.C. Board
TEST POINT	E301 (G IN)
ADJ.	Lens Iris
F VALUE	—— (2000Lux /3200K)
CHART	Gray Scale
M.EQ	Oscilloscope
SPEC.	$0.16 \pm 0.005 \text{Vp-p}$

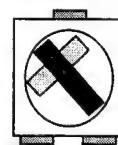
(VR SET POSITION)

R123 (R ch)
R323 (G ch)
R523 (B ch)



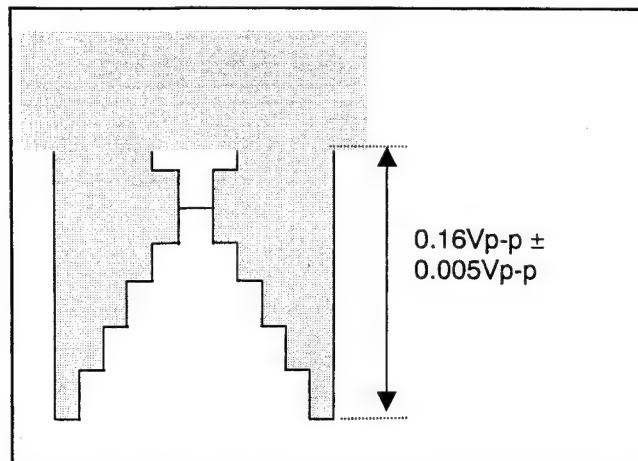
White Clip VR Position

R128 (R ch)
R328 (G ch)
R528 (B ch)



Pre-Amp DC VR Position

1. Connect the oscilloscope to E301 (G IN).
2. Adjust lens iris so that the signal level is within the specification.



3-3-2. White Clip Pre-Adjustment

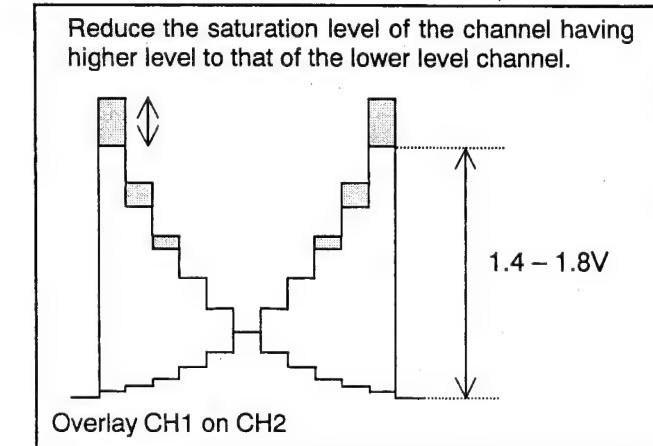
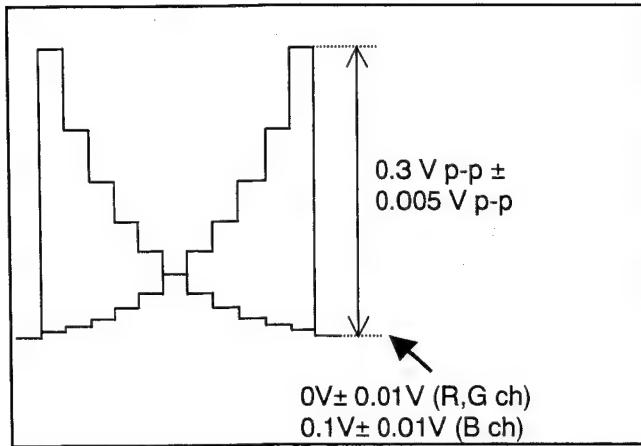
BOARD	Analog Process P.C. Board
TEST POINT	E107 (R IN) E307 (G IN) E507 (B IN)
ADJ.	R123 (R WC) R128 (R DC) R323 (G WC) R328 (G DC) R325 (B WC) R528 (B DC)
F VALUE	—— (2000Lux /3200K)
CHART	Gray Scale
M.EQ	Oscilloscope
SPEC.	Refer to VR SET POSITION

1. Observe at E107, E307 and E507 by the oscilloscope and preset the VR SET POSITION as shown in Figure.
2. Adjust the white clip VR (R123, R323, R523) so that the signal is not clipped.
3. Adjust the preamp DC VR (R128, R328, R528) so that the video signal level is not changed.

3-3-3. Pre-Amp Adjustment

BOARD	Analog Process P.C. Board
TEST POINT	E307 (G IN) E507 (B IN) E107 (R IN)
ADJ.	R446 (G LEVEL) R328 (G DC) R646 (B LEVEL) R528 (B DC) R246 (R LEVEL) R128 (R DC)
F VALUE	—— (2000Lux /3200K)
CHART	Gray scale
M.EQ	Oscilloscope
SPEC.	Signal level : $0.3 \pm 0.005 \text{Vp-p}$ DC level : $0V \pm 0.01V$ (R, G ch) : $0.1V \pm 0.01V$ (B ch)

1. Observe at E307 (G IN) by the oscilloscope, adjust R446 (G LEVEL) so that the signal level is $0.3V \pm 0.005 \text{Vp-p}$.
2. Adjust R328 (G DC) so that the DC voltage at E307 becomes $0V \pm 0.001V \text{ p-p}$.
3. Observe at E507 (B IN) by the oscilloscope, adjust R646 (B LEVEL) so that the signal level is $0.3V \pm 0.005 \text{Vp-p}$.
4. Adjust R528 (B DC) so that the DC voltage at E507 becomes $0.1V \pm 0.001V \text{ p-p}$.
5. Observe at E107 (R IN) by the oscilloscope, adjust R246 (R LEVEL) so that the signal level is $0.3V \pm 0.005 \text{Vp-p}$.
6. Adjust R128 (R DC) so that the DC voltage at E107 becomes $0V \pm 0.001V \text{ p-p}$.



3-3-4. White Clip Adjustment

BOARDE	Analog Process P.C.Board
TEST POINT	E307 (G IN) E107 (R IN) E507 (B IN)
ADJ.	R123 (R WC) R128 (R DC) R323 (G WC) R328 (G DC) R523 (B WC) R528 (B DC)
F VALUE	F9.5 +3 (2000Lux /3200K)
CHART	Gray Scale
M.EQ	Oscilloscope
SPEC.	Saturation Level : 1.4Vp-p – 1.8Vp-p

1. Adjust the lens iris by more than 3 stops from the normal optical content position.
2. Connect CH1 of the oscilloscope to E307 and CH2 of the oscilloscope to E107.

Scilloscope	Test Point
CH1	E307 (G IN)
CH2	E107 (R IN)

 (1) If the clip level is under saturation level, adjust R123 (R WC) and R323 (G WC) so that the two signal levels coincide with each other from 1.4V p-p to 1.8V p-p.

 (2) If the clip level is over saturation level, adjust R123 (R WC) and R323 (G WC) so that the same level is 1.4V p-p to 1.8V p-p.
3. Adjust R523 (B WC) so that the signal level at E507 (B IN) coincides with the signal level at E307.

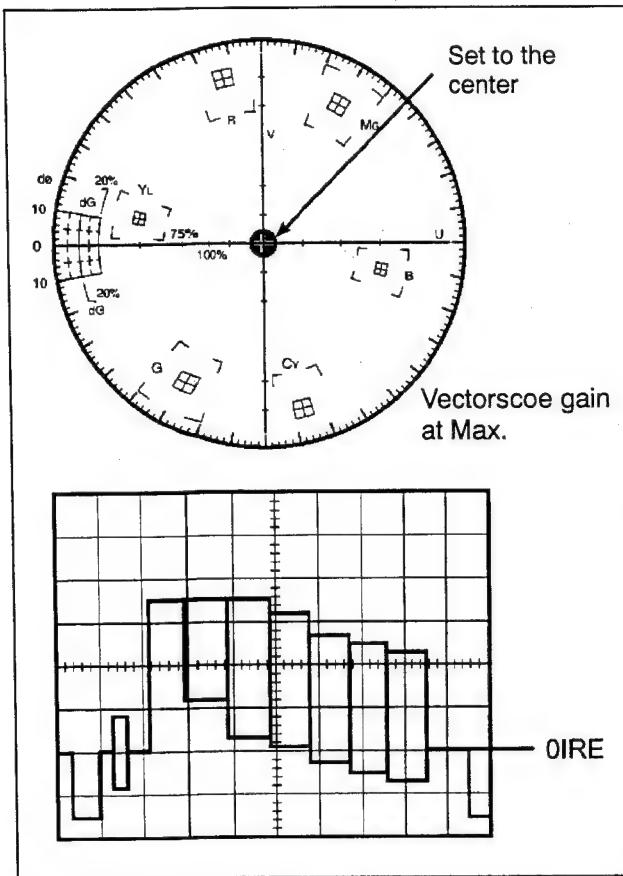
Note: After this adjustment, confirm the each white clip level is same level.

3-4. ENC P.C. Board

3-4-1. Colour Bar Adjustment

BOARDE	ENC P.C. Board
TEST POINT	VIDEO OUT
ADJ.	R190 (Y_BLK) R132 (B_CB) R188 (R_CB)
F VALUE	—
CHART	—
M.EQ	WFM Monitor, Vectoscopy
SPEC.	Black Level: 0IRE ± 0.5IRE Y Level: 100IRE ± 2IRE

1. Observe at video out signal by the WFM monitor and Vectroscope.
2. Change video out to Colour Bar signal.
3. From the menu, set the setup to 0IRE.
4. Adjust R190 (Y_BLK) so that black level of the colour bar on WFM monitor meets the specification.
5. Verify that the Y level meets the specification.
6. From the menu, set the setup to 7.5IRE.
7. Adjust R132 (R_CB) and R188 (B_CB) so that carrier balance is at the center on the vector scope.
8. Verify that the Y level and all colours of the colour bar are within the mark on the vector scope.



- * If Y level, burst level or chroma level of the colour bar is out of the specification, go to the following adjustment steps.

(A) When Y level of the colour bar is out of the specification:

1. Switch video to colour bar.
2. Open the RAM editor by turning on power while pressing ITEM/AWC SW (↓) and YES/ABC SW (+) simultaneously.
3. Change to address FFE21C by moving the cursor with ITEM/AWC SW (↓).
4. Observe Y level on the waveform monitor. Change the numerical value with YES/ABC SW (+) or NO/BAR SW (-) to meet the specification.

(B) When burst level or chroma level of the colour bar is out of the specification:

1. Switch video to colour bar. Open the RAM editor.
2. At address FFE21E, change numerical value so that burst level meets the specification.
3. At address FFE21F, change numerical value so that chroma level meets the specification.

3-4-2. SC-H Adjustment

BOARDE	ENC P.C.Board
TEST POINT	VIDEO OUT
ADJ.	R192 (SC-H)
F VALUE	_____
CHART	_____
M.EQ	SC-H METER
SPEC.	0° ± 5 °

1. Connect the SC-H Meter to VIDEO OUT.
2. Adjust R192 (SC-H) so that the SC-H phase is within the specification.

3-5. Auto Adjustment

3-5-1.Auto Adjustment Procedure

1. Turn the power ON while pressing the ITEM/AWC SW (↓), YES/ABC SW (+) and NO/BAR SW (-) on the rear panel. The Automatic Adjustment menu will be displayed on the video output signal as shown below.

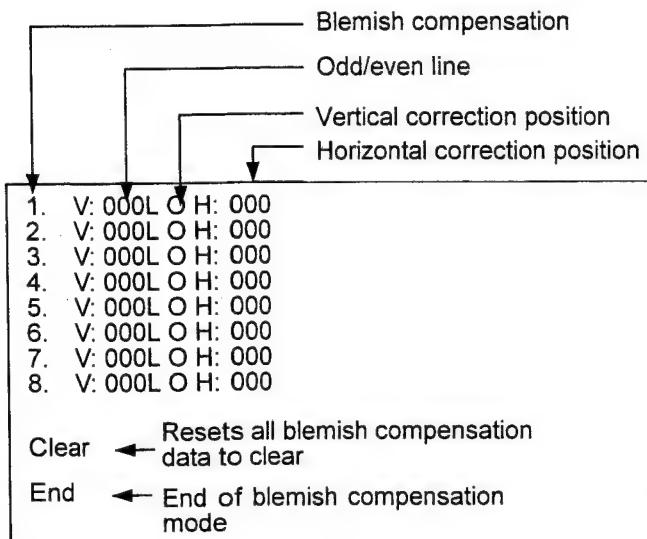
* *Auto Adjust* *			
Iris Memory	82		
Auto Adjust	Step	00	--
1. Pedestal	3F	3B	40
2. Pulcan	A6	9F	B9
3. Gain	6A	A6	73
4. Gamma	19	1B	1B
5. Flare	FF	AC	F8
6. S.E	80808384858988890		
5600K Adjust	A3	57	--
ABC ADJ R ± 0	AWC ADJ R ± 0		
ABC ADJ B ± 0	AWC ADJ B ± 0		

2. Connect the Oscilloscope to E307 on the Analog Process Board.
3. Set the Lens Iris so that the peak level of the Gray Scale from the Blanking level becomes $0.3\text{ V}\pm 0.05\text{ V}$ p-p.
4. Press the YES/ABC SW (+), to memorize Lens Iris data.
5. Set the Lens Iris to the Automatic Side.
6. Select the Automatic Adjustment Item by the ITEM/AWC SW (↓), and press the YES/ABC SW (+) to start the Automatic Adjustment.
7. After Automatic Adjustment finished, will be displayed "OK".
8. Confirm turn the power OFF and ON again so that the Camera return to the Normal mode.
9. Press the YES/ABC SW (+), and confirm the Black balance operation is normality.
10. Press the ITEM/AWC SW (↓), and confirm the White balance operation is normality.

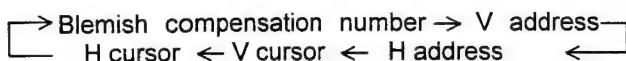
3-6. CCD Blemish Compensation

3-6-1. Manual CCD Blemish Compensation procedure

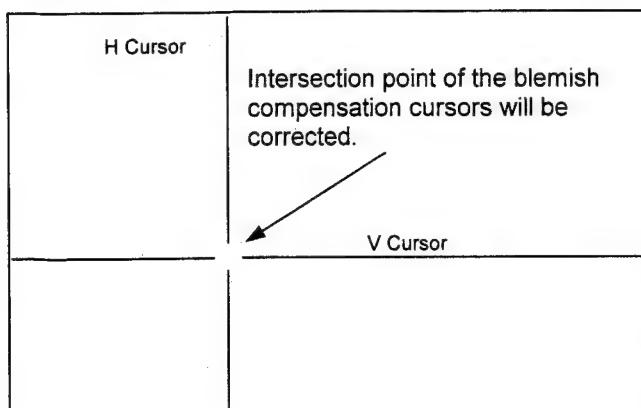
1. While pressing ITEM/AWC SW (\downarrow) and NO/BAR SW (-) on the Rear Panel, turn on power. The blemish compensation menu will be displayed on the video output as shown below.



2. Select the blemish compensation number with MENU switch (\uparrow) or ITEM/AWC switch (\downarrow).
3. Using YES/ABC switch (+) or NO/BAR switch (-), select the position of flaw to be corrected by moving it in V or H direction.
Pressing NO/BAR switch (-) selects the mode in the order shown below:



4. When the cursor is moving, character disappears and the cursor is displayed as shown below.



5. The position of the cursor is moved with MENU switch (\uparrow) or ITEM/AWC switch (\downarrow).
6. When the point of intersection is at the blemish, the blemish will be compensated.
7. To compensate another blemish, repeat the above steps.
8. After compensation, move blinking character to End and press YES/ABC switch (+).

*Note that up to 8 blemishes can be compensated.

SECTION 4

BLOCK DIAGRAM SCHEMATIC DIAGRAMS

CONTENTS

BLOCK DIAGRAM

DRIVE/ANALOG PROCESS (1/2) BLOCK DIAGRAM	BLK-1
ANALOG PROCESS (2/2) BLOCK DIAGRAM	BLK-2
ENCODER BLOCK DIAGRAM.....	BLK-3
DSP BLOCK DIAGRAM	BLK-4
POWER/POWER SUB BLOCK DIAGRAM.....	BLK-5

SCHEMATIC DIAGRAMS

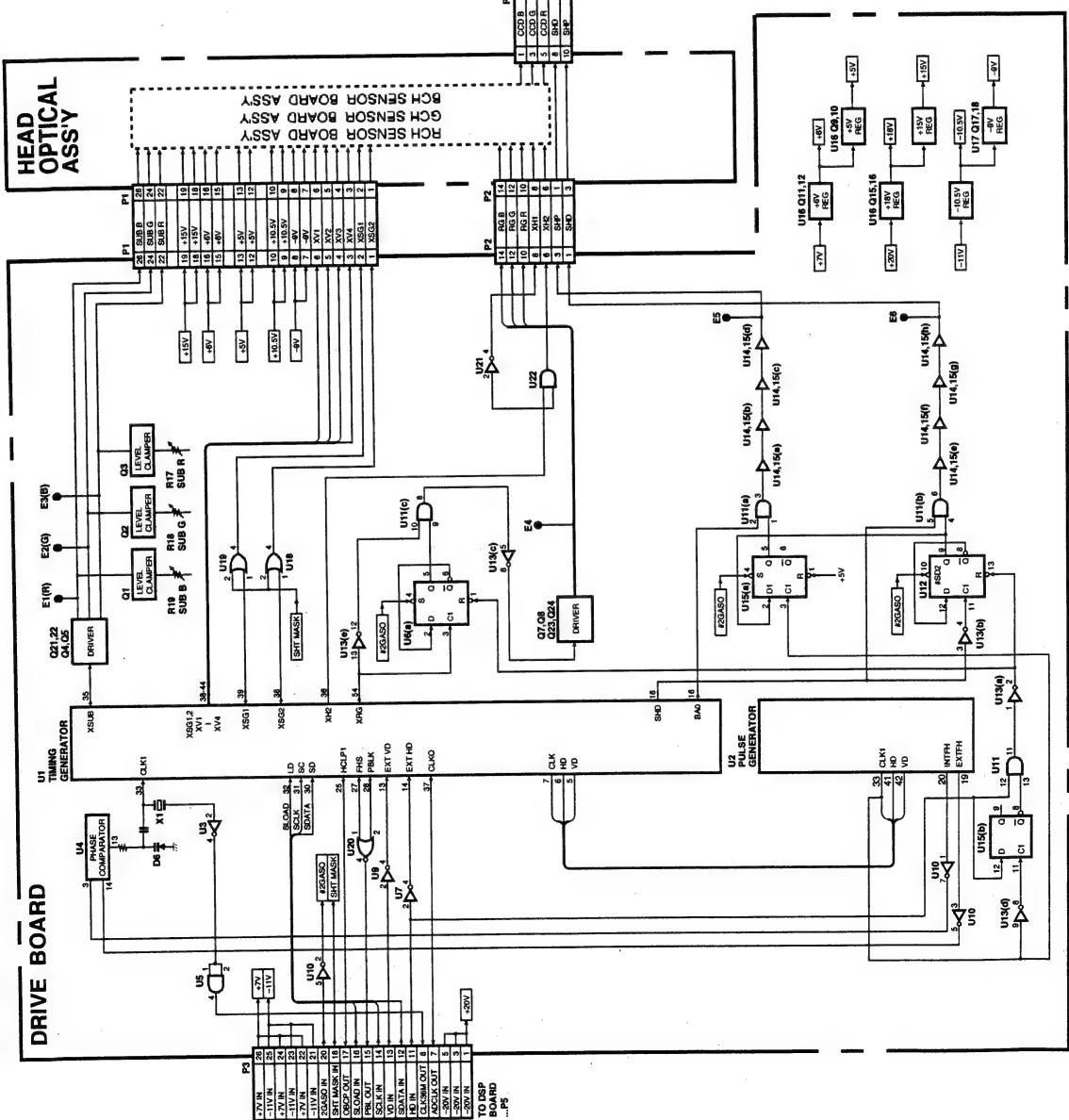
CCD G ch SCHEMATIC DIAGRAM	SCM001
CCD R ch SCHEMATIC DIAGRAM	SCM002
CCD B ch SCHEMATIC DIAGRAM	SCM003
DRIVE (NTSC) SCHEMATIC DIAGRAM	SCM004
ENC (NTSC) SCHEMATIC DIAGRAM.....	SCM005
POWER/ POWER SUB SCHEMATIC DIAGRAM	SCM006
JOINT SCHEMATIC DIAGRAM.....	SCM007
DSP SCHEMATIC DIAGRAM.....	SCM008
ANALOG PROCESS SCHEMATIC DIAGRAM	SCM011

IMPORTANT SAFETY NOTICE

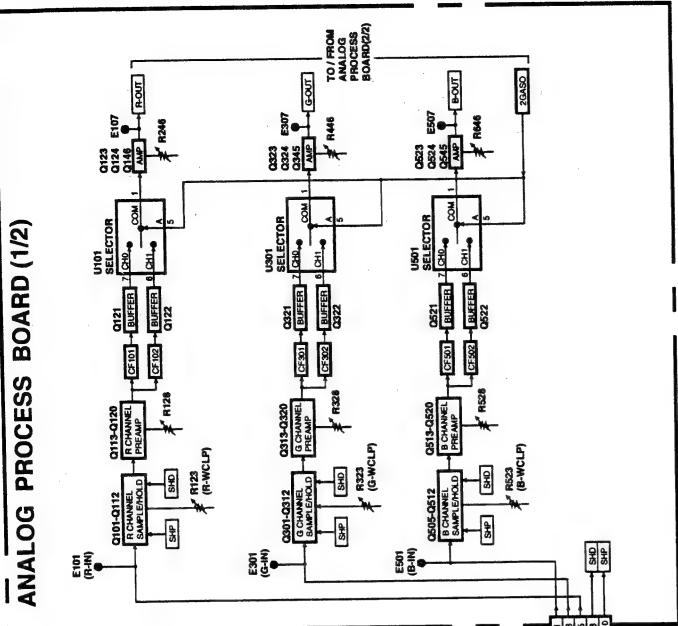
COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST.
AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

DRIVE/ANALOG PROCESS BOARD (1/2) BLOCK DIAGRAM

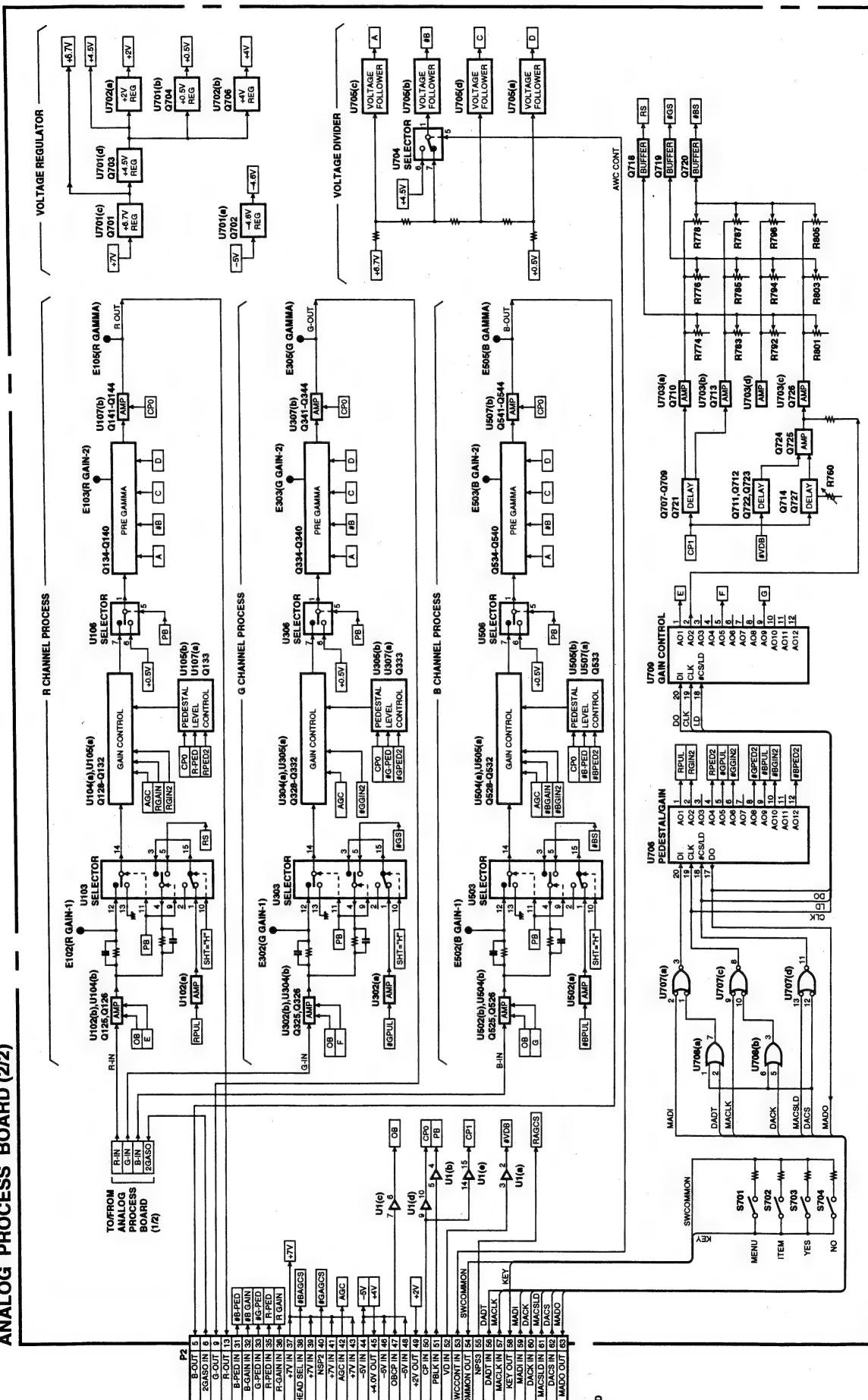


ANALOG PROCESS BOARD (1/2)



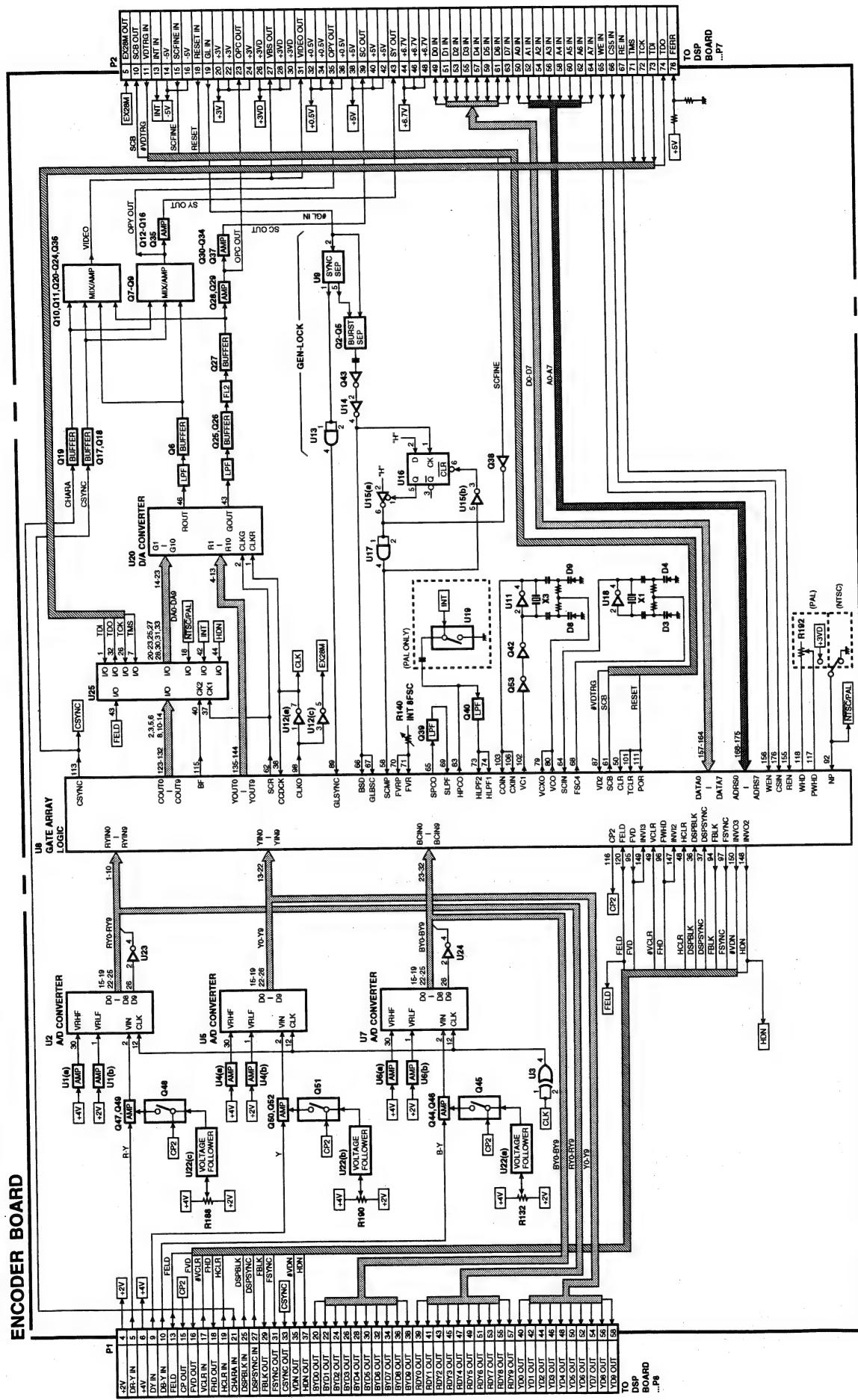
ANALOG PROCESS (2/2) BLOCK DIAGRAM

ANALOG PROCESS BOARD (2/2)

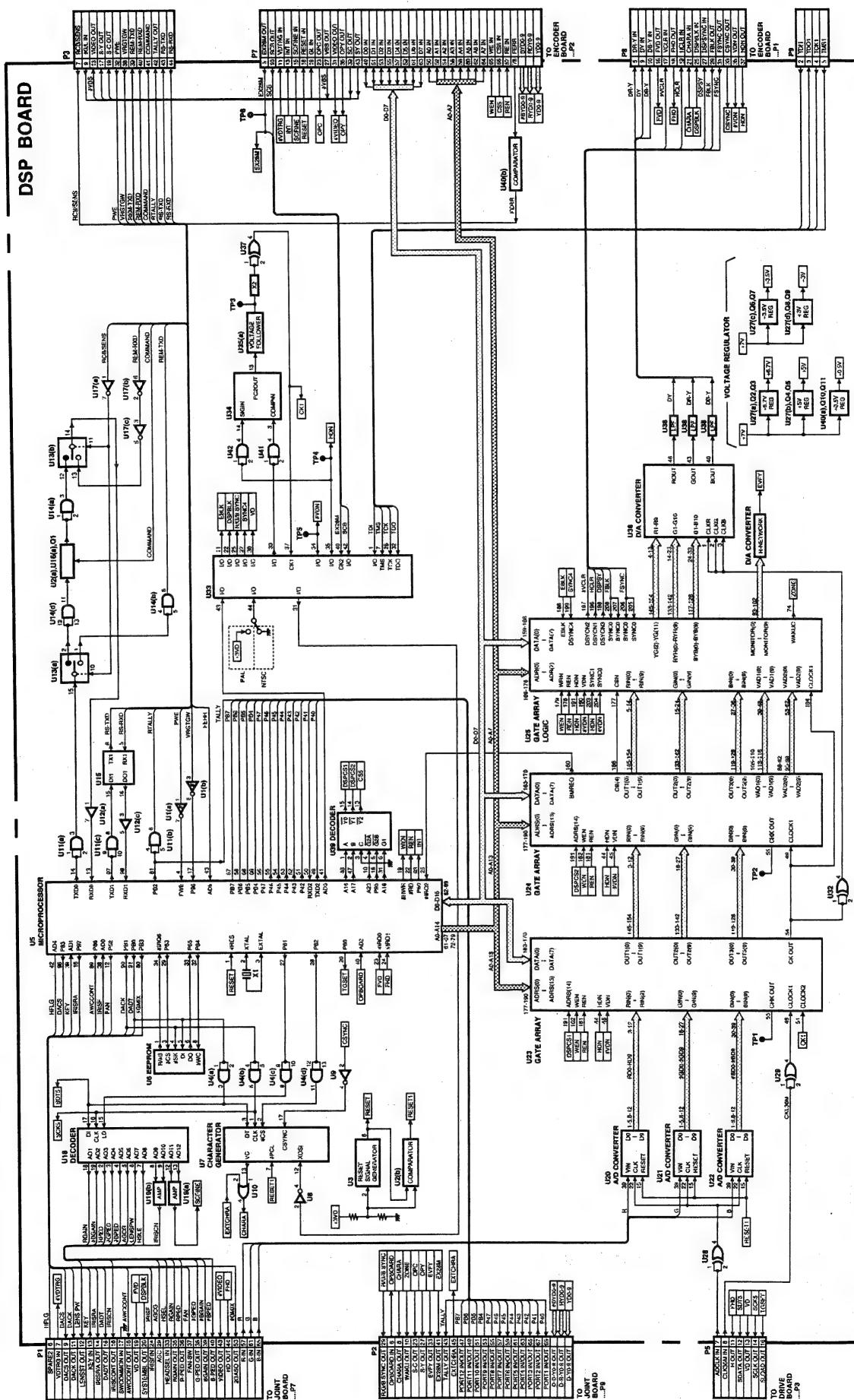


ENCODER BLOCK DIAGRAM

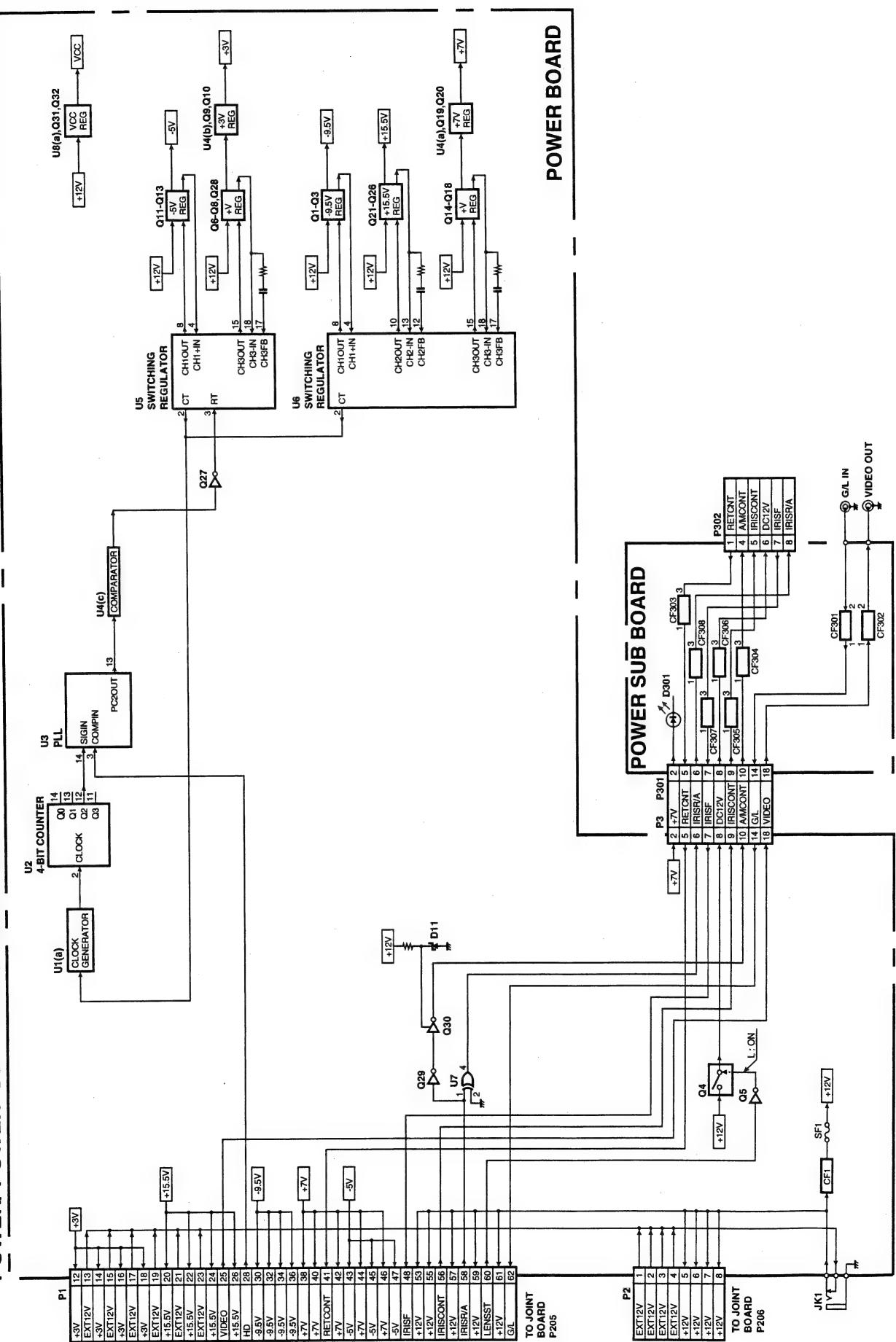
ENCODER BOARD

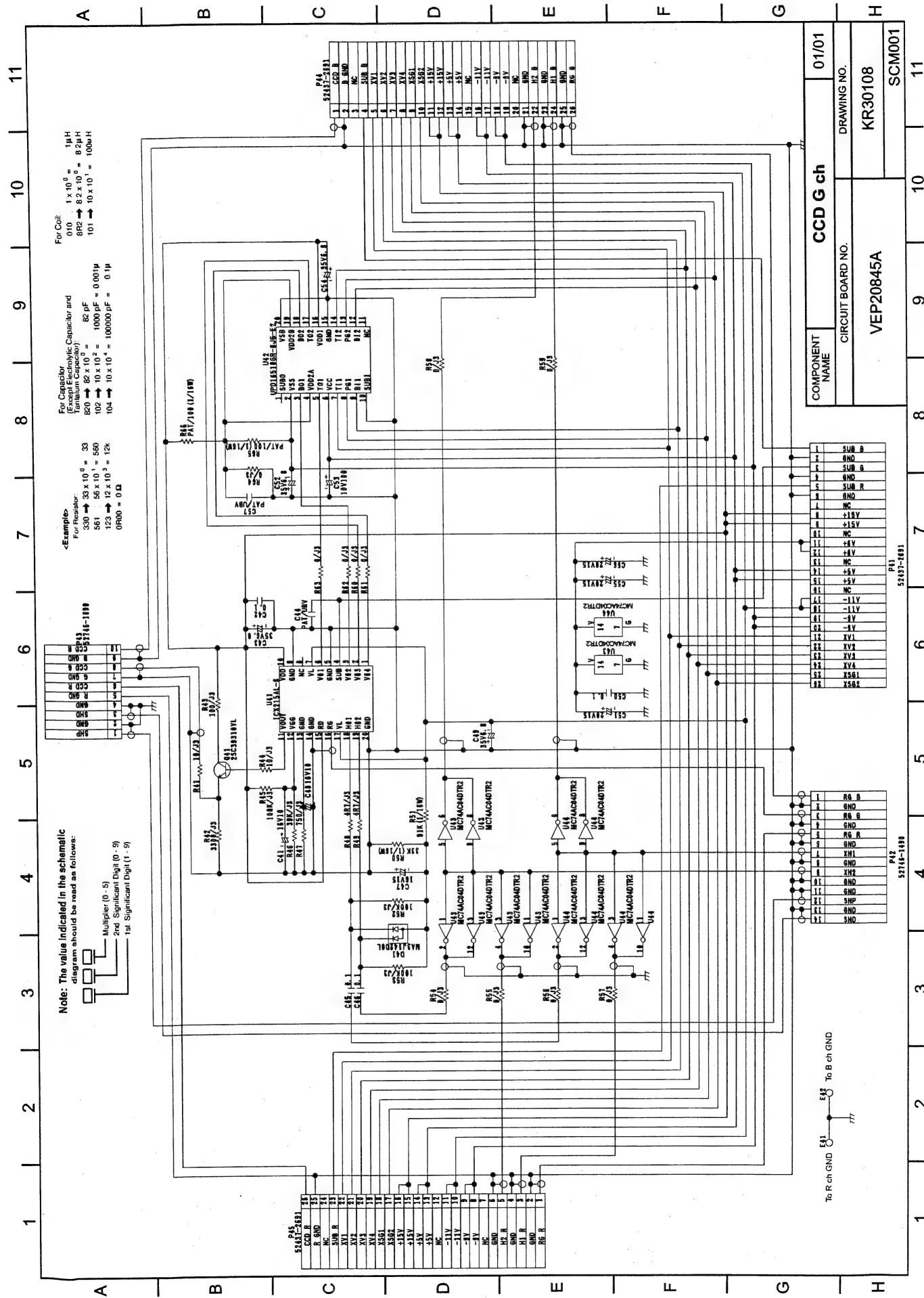


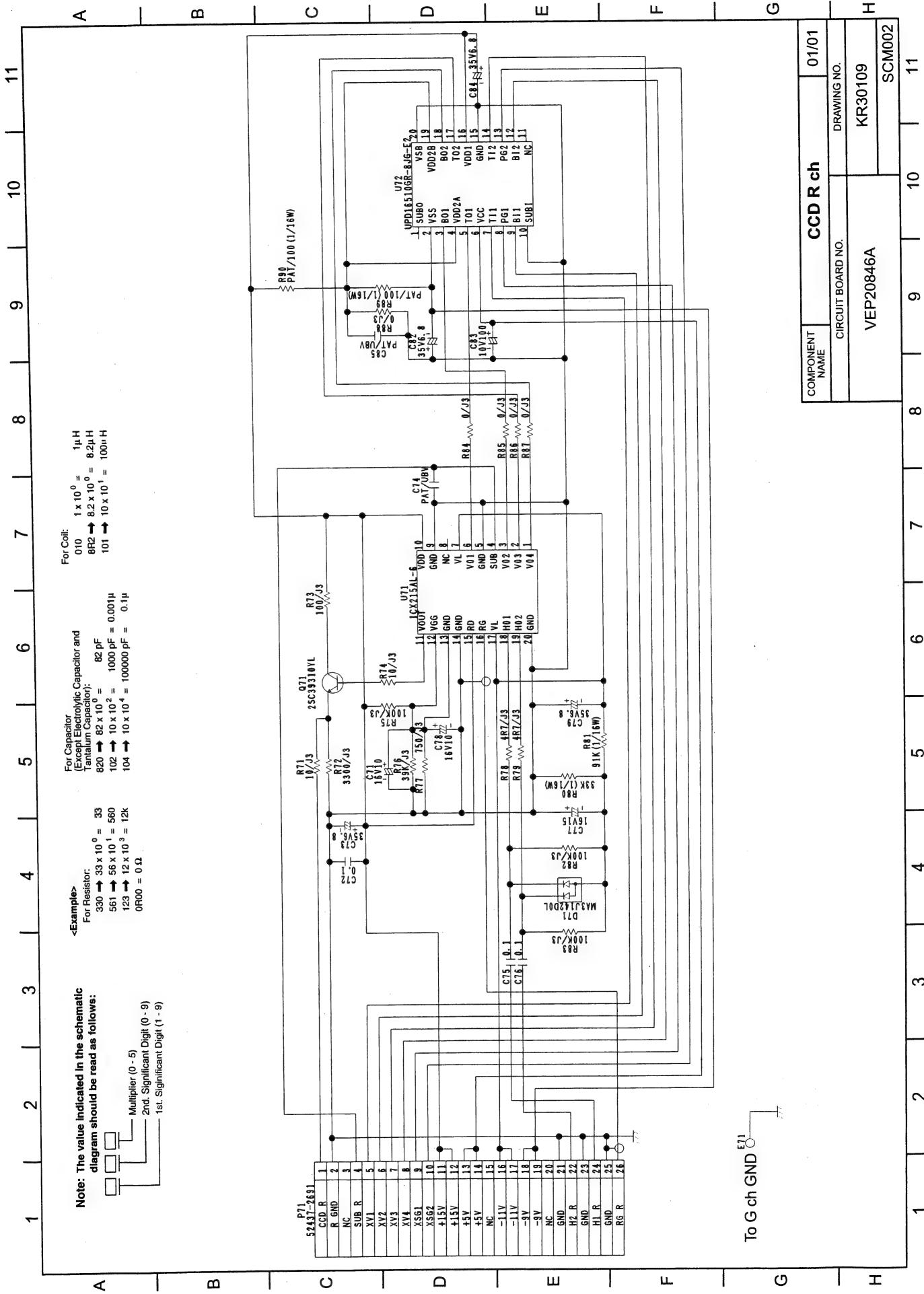
DSP BLOCK DIAGRAM

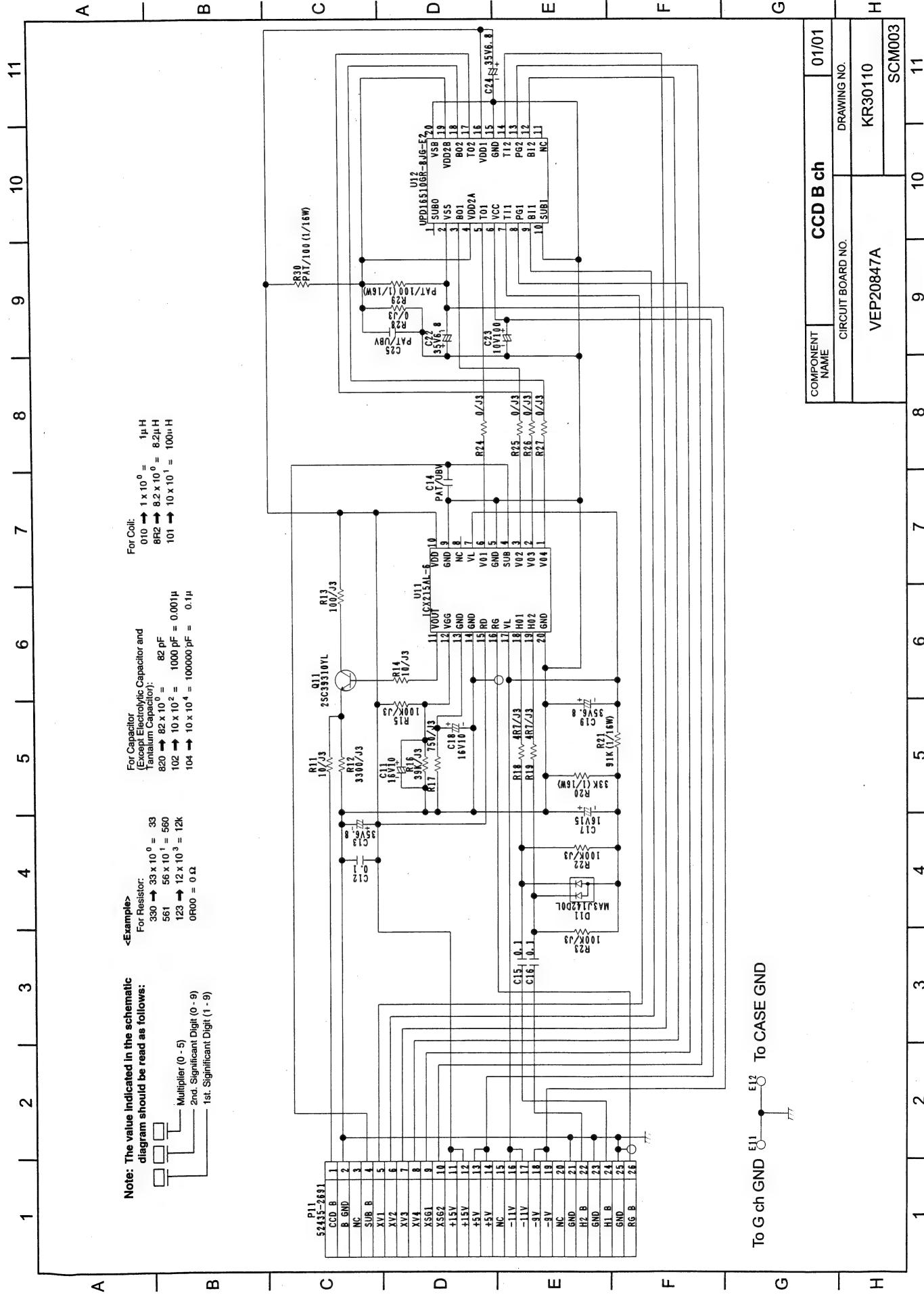


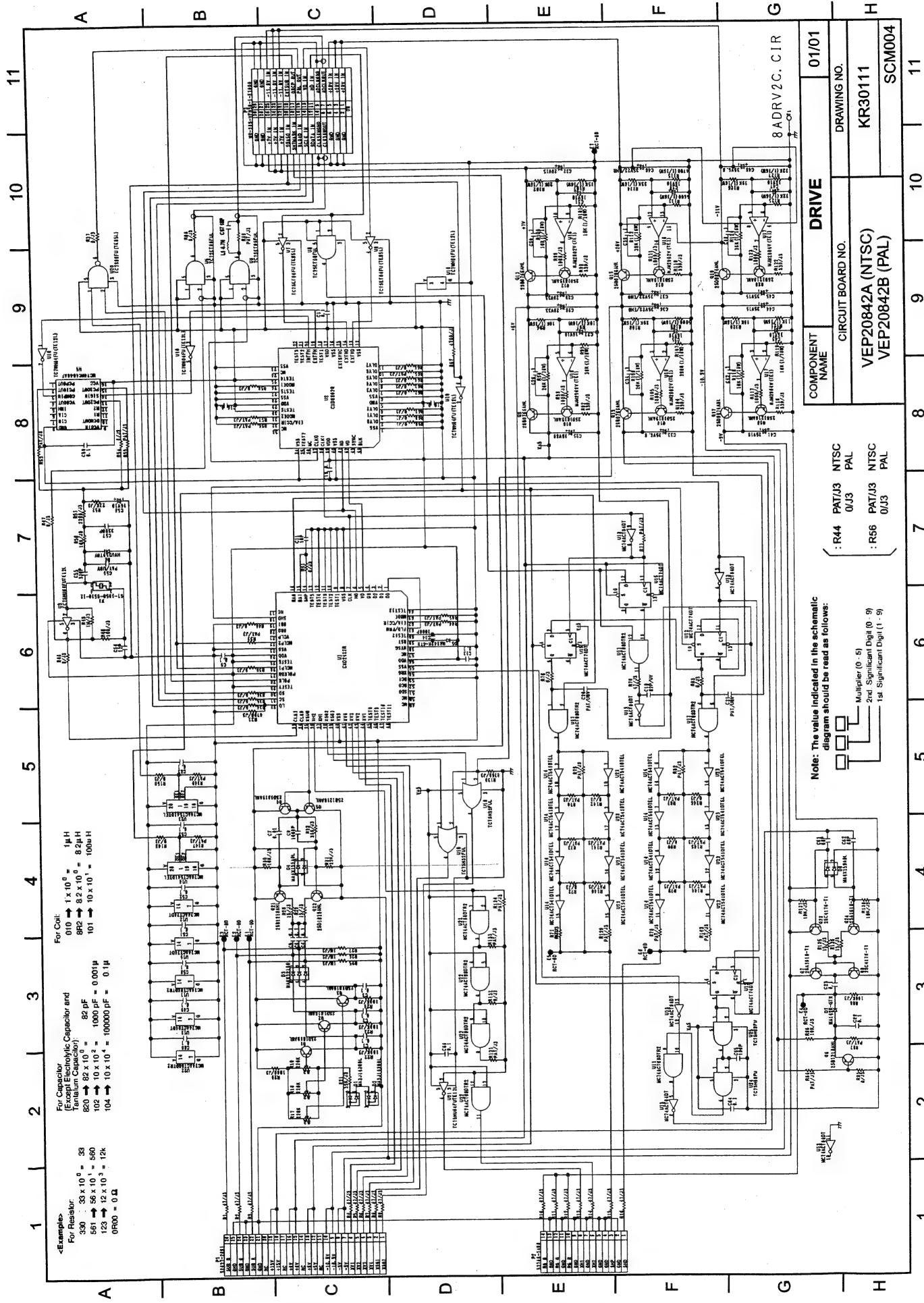
POWER/ POWER SUB BLOCK DIAGRAM

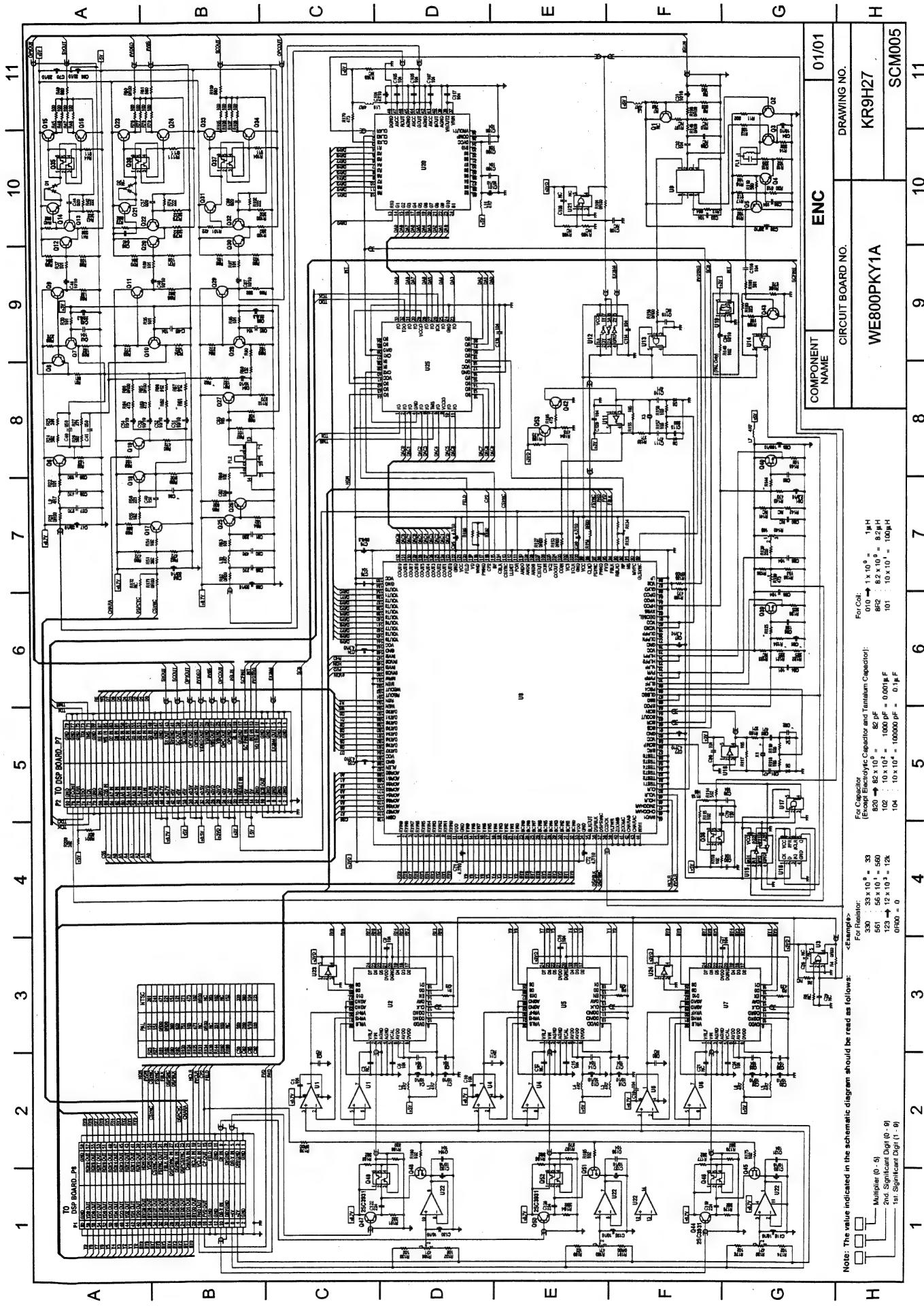


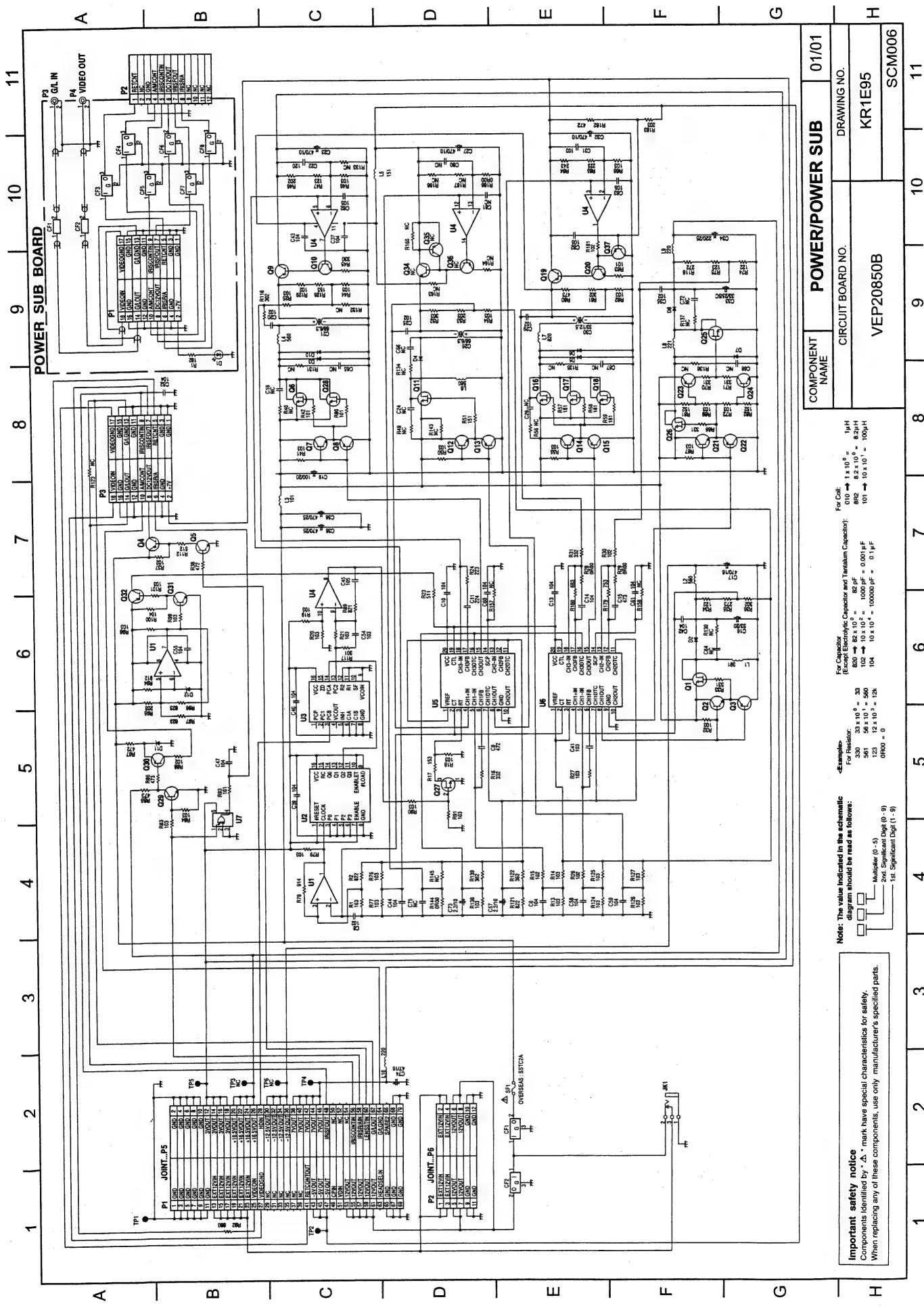


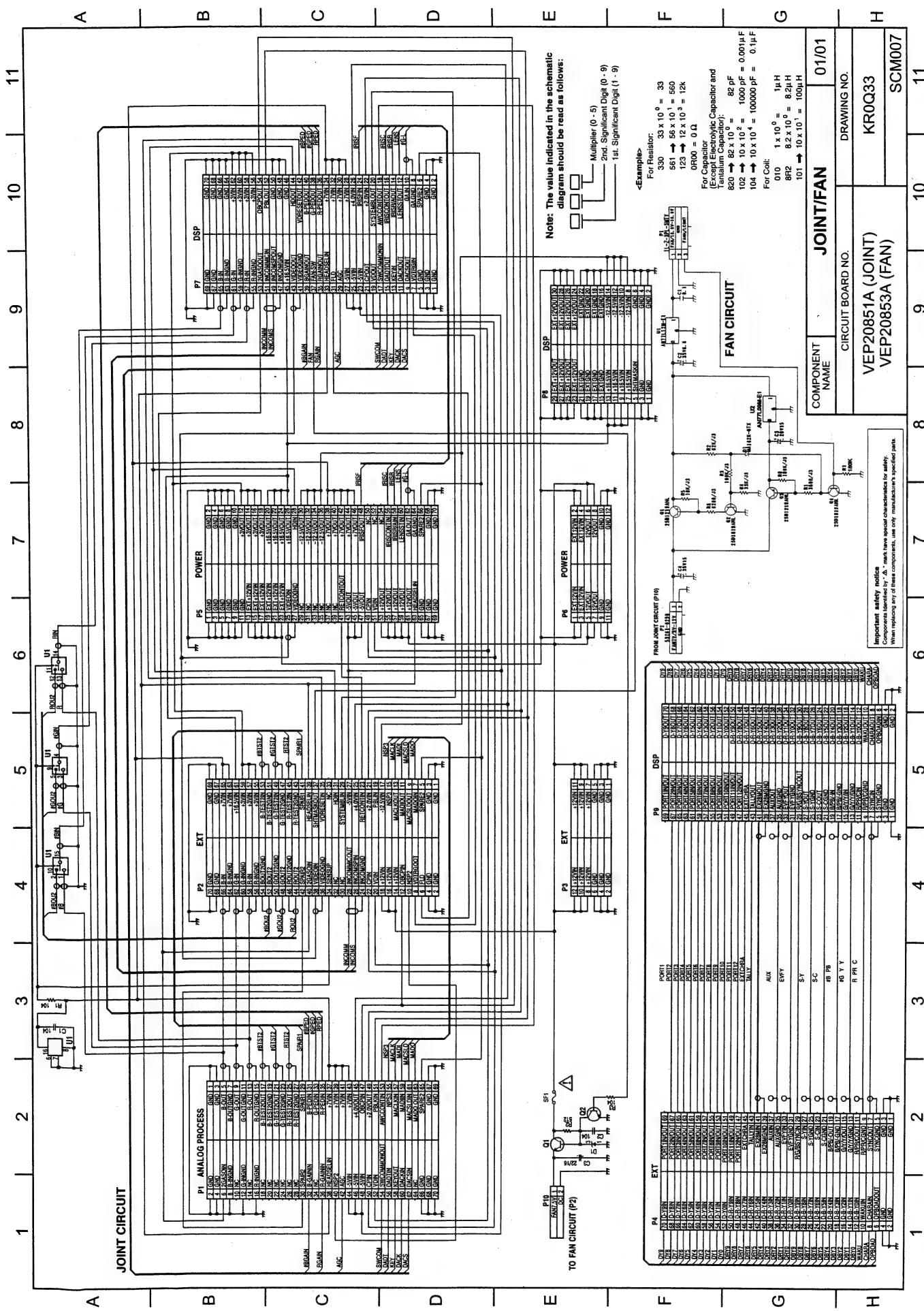


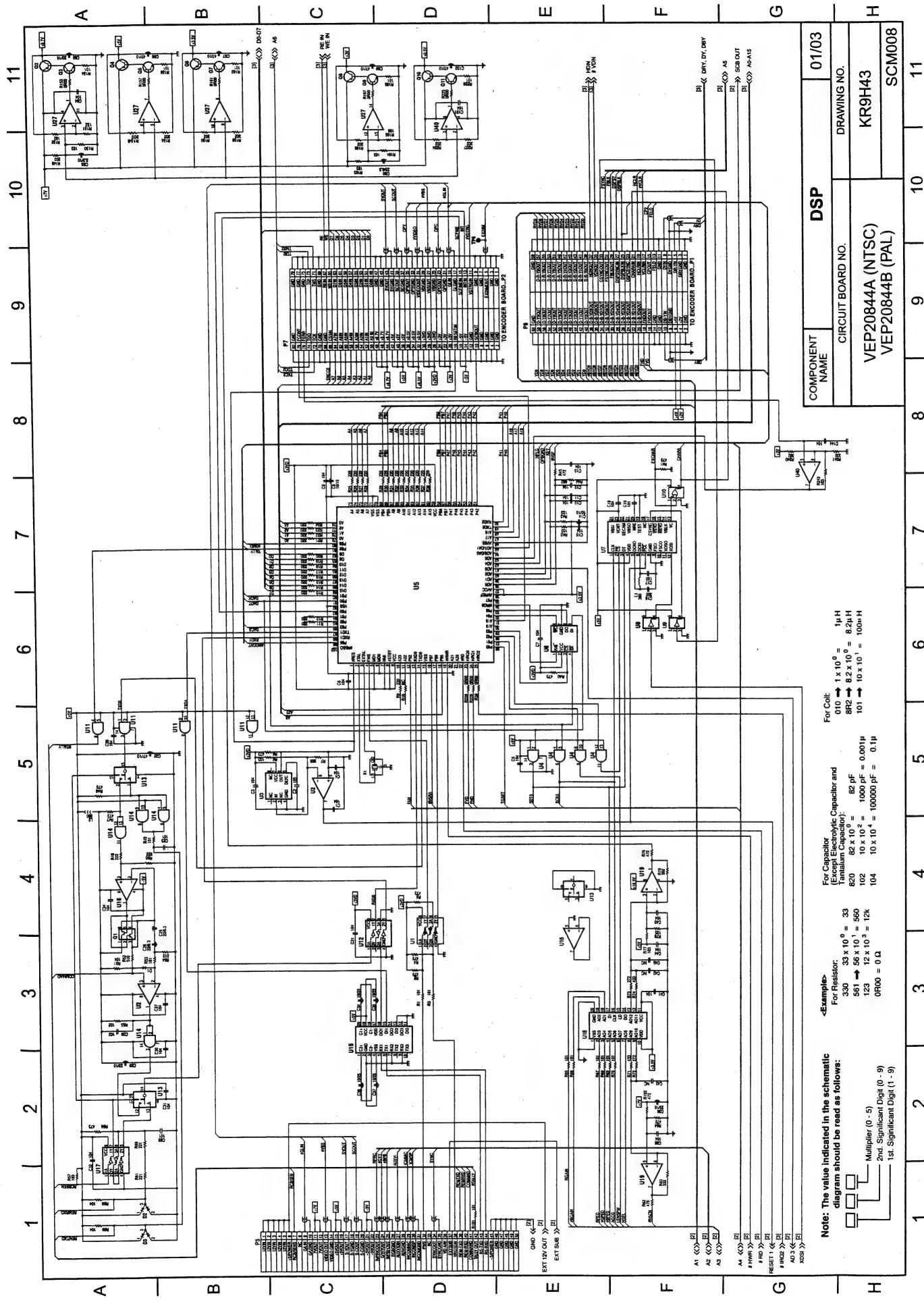


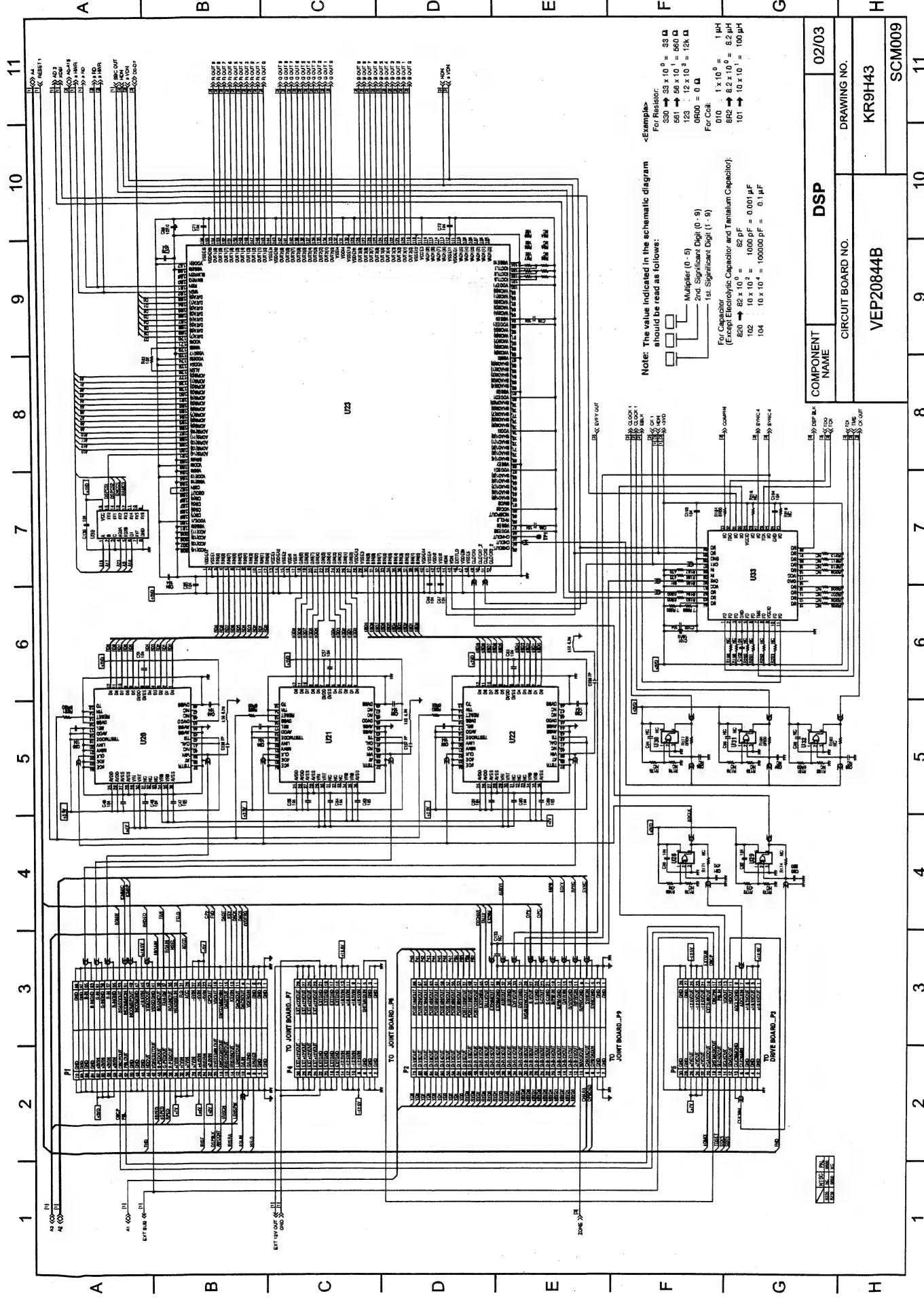


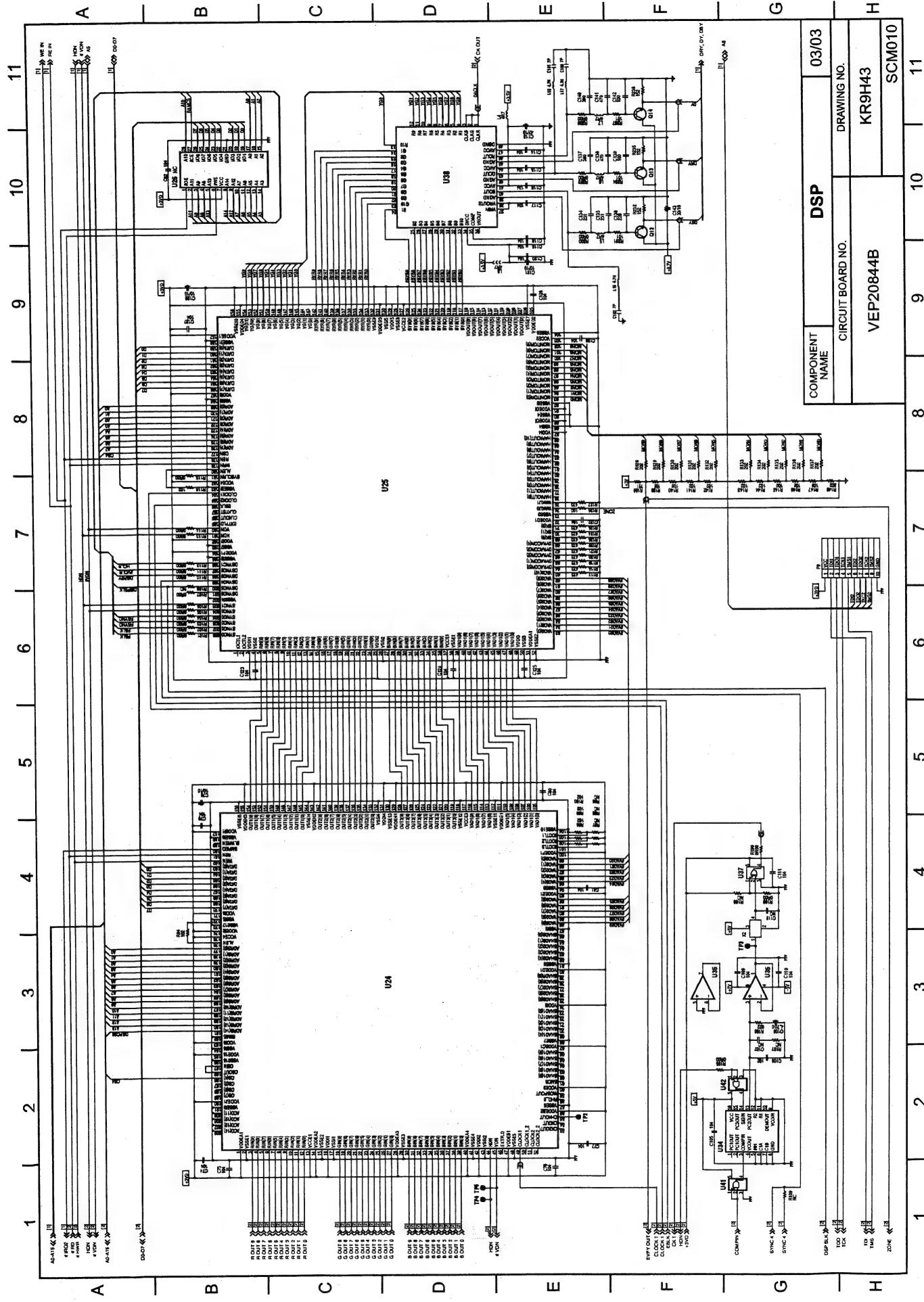


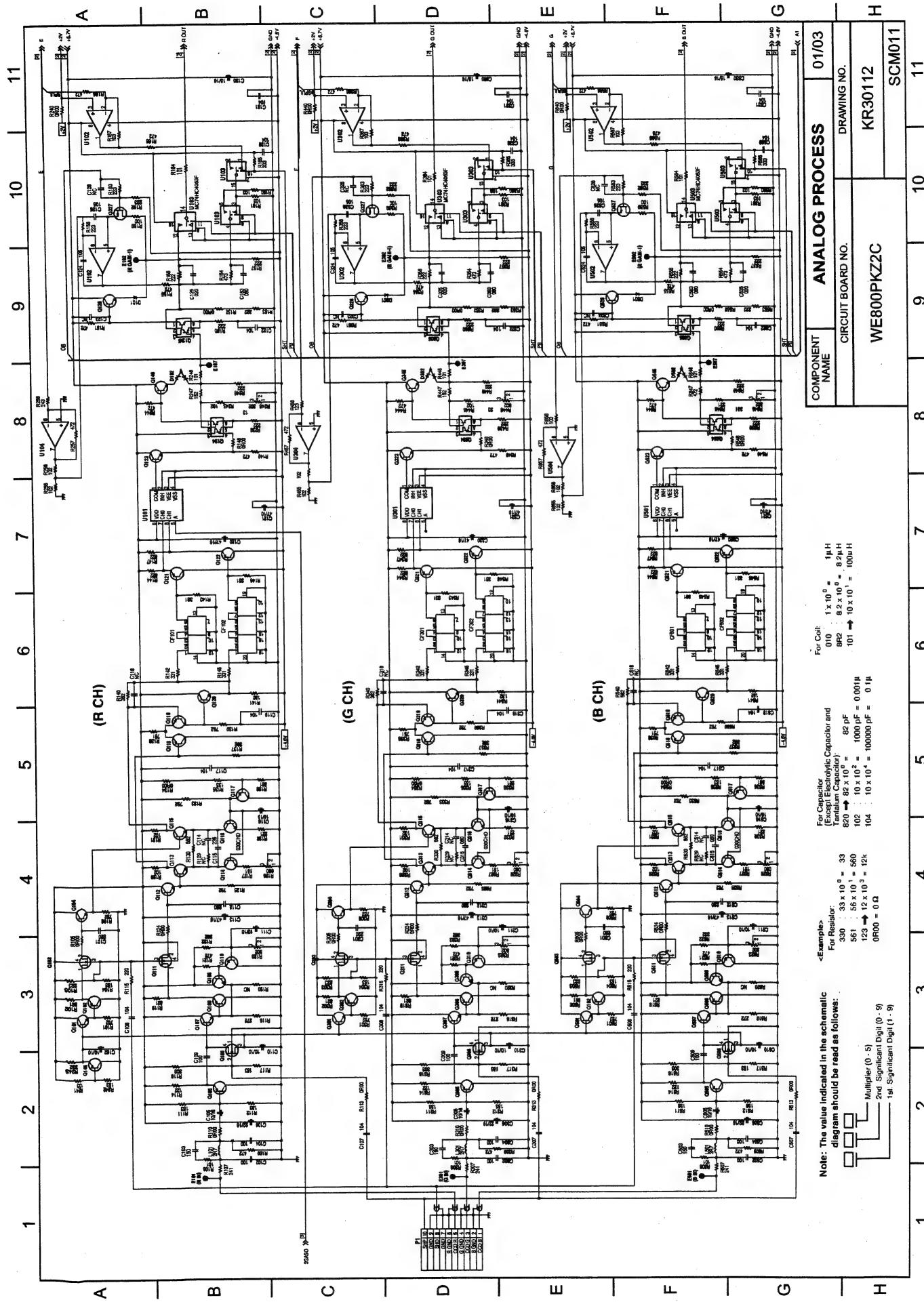


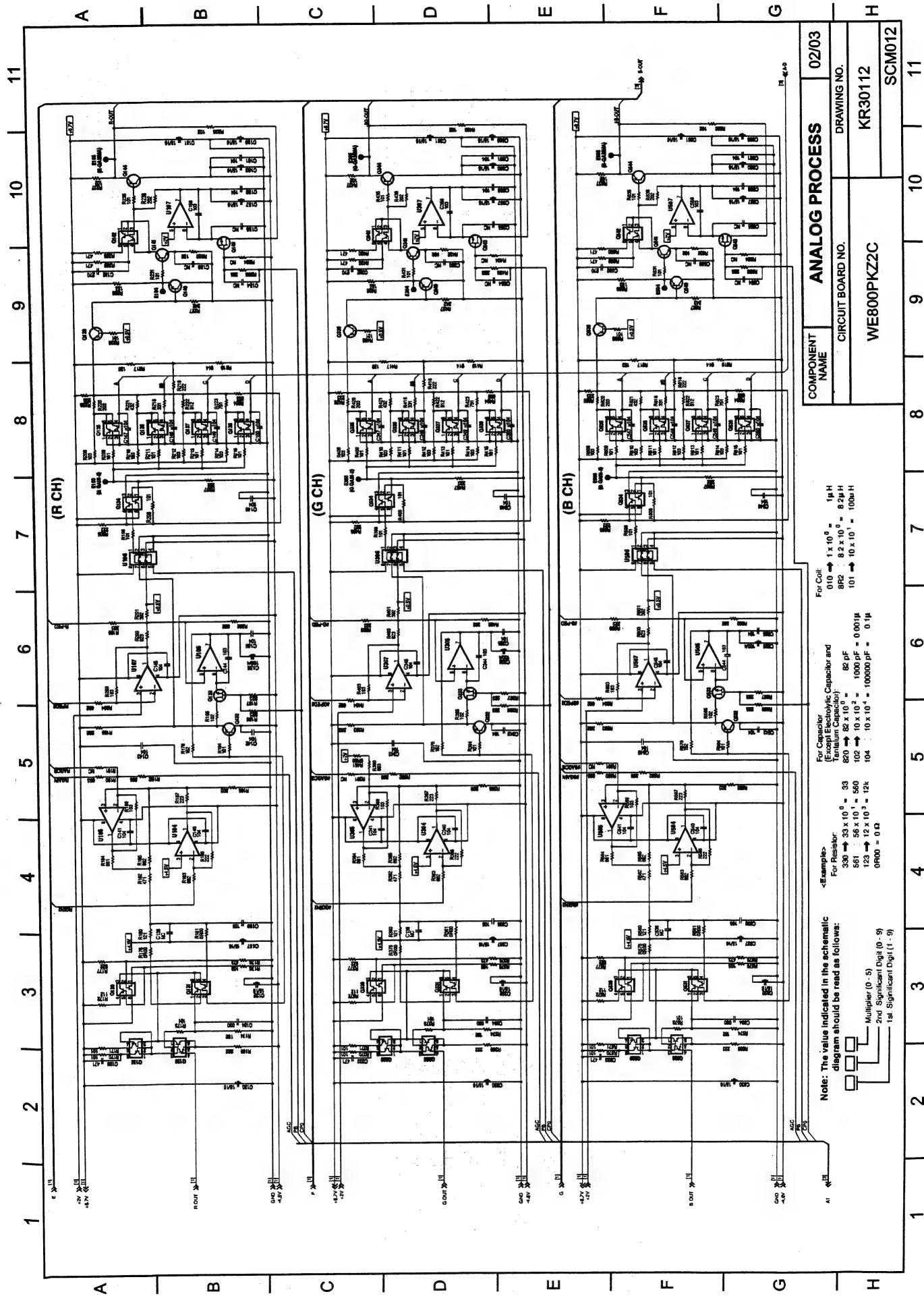


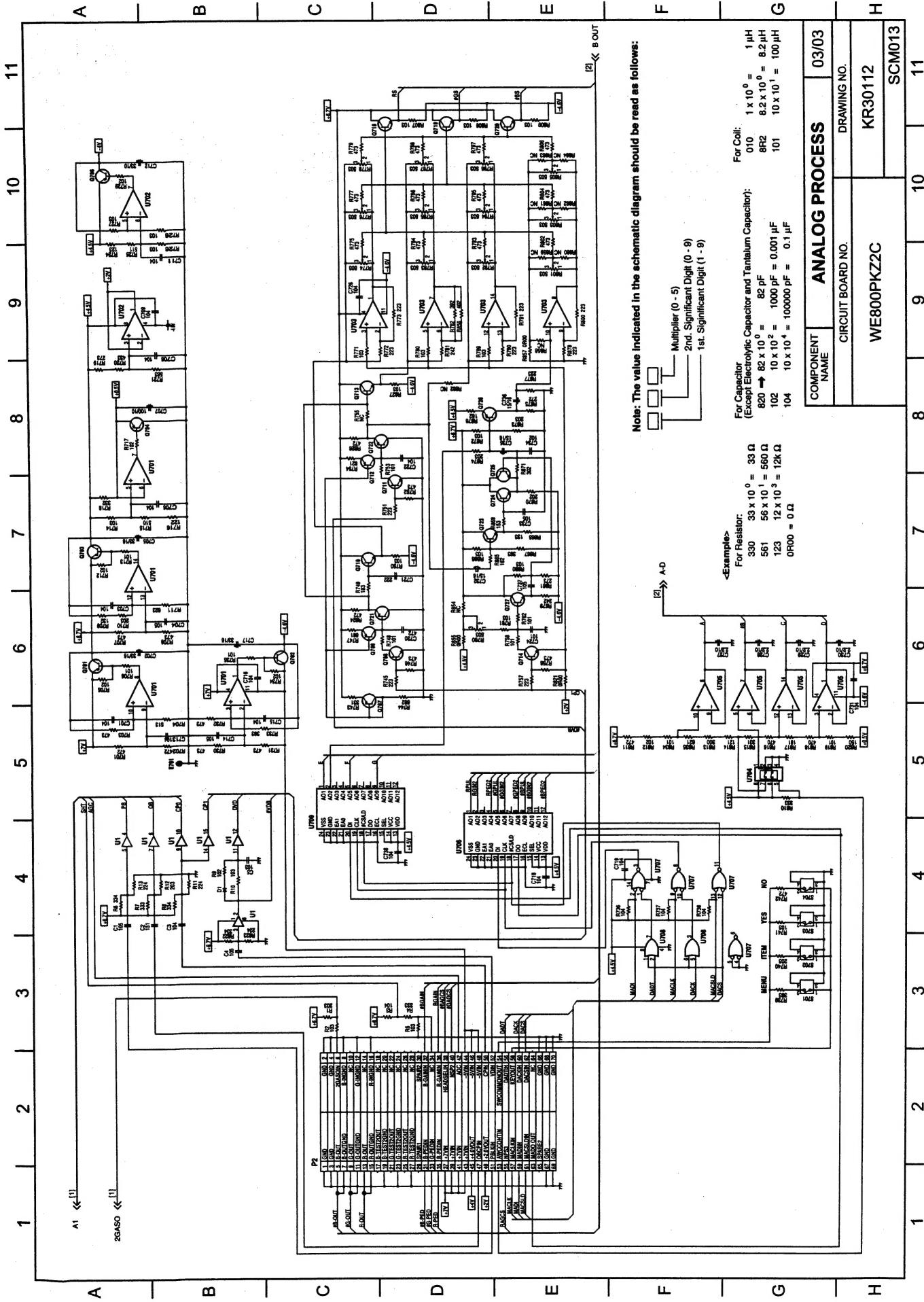












SECTION 5

EXPLODED VIEWS & REPLACEMENT PARTS LIST

Note:

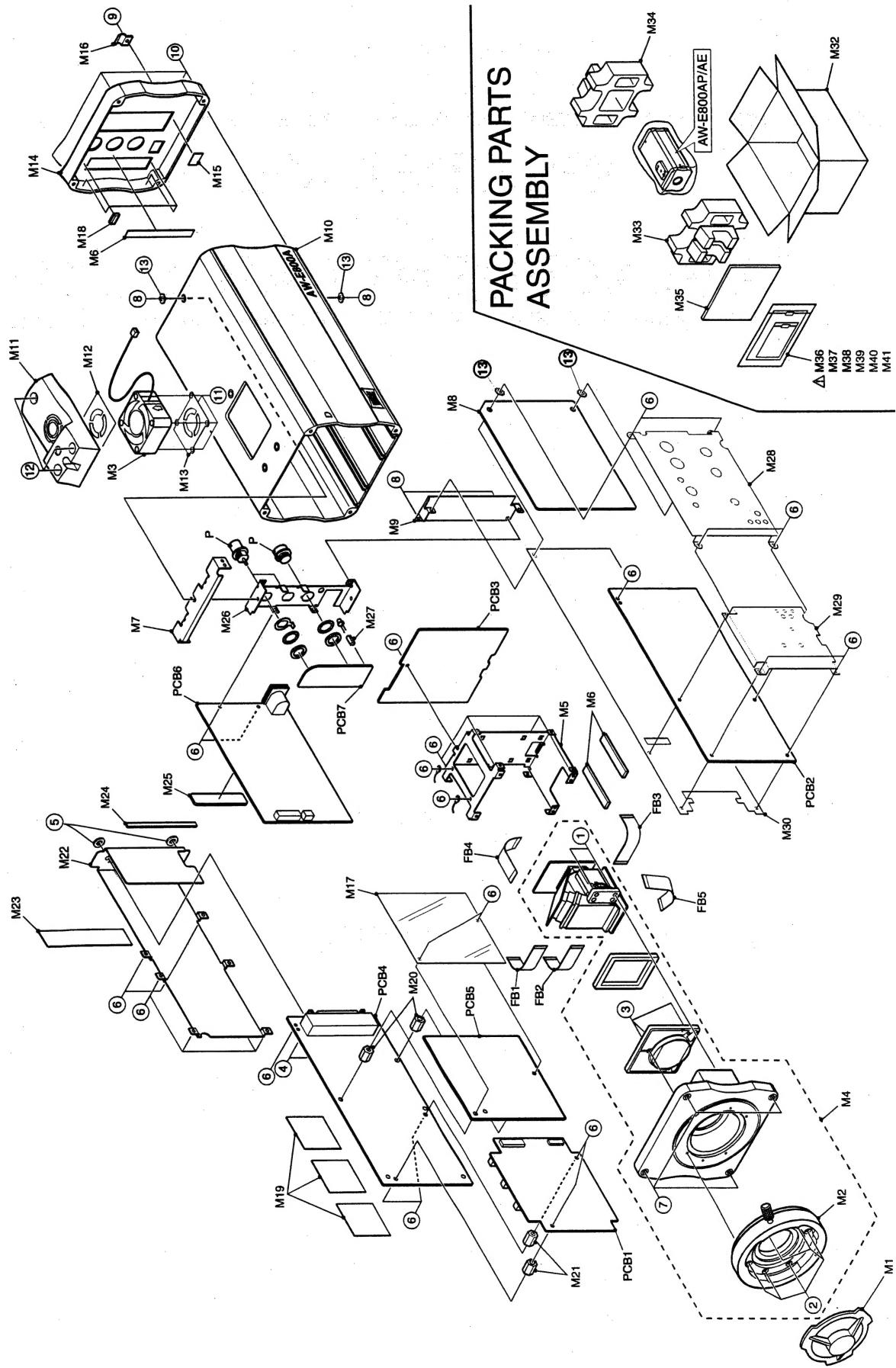
1. *Be sure to make your orders of replacement parts according to this list.
2. Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS,
all capacitors are in MICROFARADS (μ F), P= $\mu\mu$ F.
3. The P.C. Board units marked with "■" shown below the main assembled parts.
4. The parts marked with \odot on the exploded view show the electric parts.
5. **IMPORTANT SAFETY NOTICE**
Components identified with the mark Δ have the special characteristics for safety. When replacing any
of these components, use only the same type.
6. The marking (RTL) indicates the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

CONTENTS

CASING AND PACKING PARTS ASSEMBLY.....PRT-1

CASING PARTS ASSEMBLY

Components identified with the mark Δ have the special characteristics for safety.
When replacing any of these components, use only the same type.



Components identified with the mark have the special characteristics for safety. When replacing any of these components, use only the same type.

CASING PARTS LIST

PACKING PARTS LIST

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	XYN3+C8FX	SCREW	2	
2	XSN3+8FN	SCREW	6	
3	XQN24+A3FZK	SCREW	3	
4	XSB25+4FN	SCREW	2	
5	XWA25BFN	WASHER	2	
6	XSB26+4FN	SCREW	24	
7	XSN26+8FZK	SCREW	4	
8	XSN26+6FN	SCREW	4	
9	XSB2+4FZK	SCREW	1	
10	XSN26+8FN	SCREW	4	
11	XSB2+4FX	SCREW	4	
12	XSB26+8FN	SCREW	3	
13	XWC26BF	WASHER	4	
PCB1	VEP20842A	DRIVE P. C. BOARD	1	FOR AW-E800AP
PCB1	VEP20842B	DRIVE P. C. BOARD	1	FOR AW-E800AE
PCB2	WE800PKZ2C	ANALOG PROCESS P. C. BOARD	1	FOR AW-E800AP
PCB2	WE800EKZ2C	ANALOG PROCESS P. C. BOARD	1	FOR AW-E800AE
PCB3	VEP20851A	JOINT P. C. BOARD	1	
PCB4	VEP20844A	DSP P. C. BOARD	1	FOR AW-E800AP
PCB4	VEP20844B	DSP P. C. BOARD	1	FOR AW-E800AE
PCB5	WE800PKY1B	ENC P. C. BOARD	1	FOR AW-E800AP
PCB5	WE800EKY1B	ENC P. C. BOARD	1	FOR AW-E800AE
PCB6	VEP20850B	POWER P. C. BOARD	1	
PCB7	VEP20852A	POWER SUB P. C. BOARD	1	